

# THE AMERICAN School Board Journal

A PERIODICAL OF SCHOOL ADMINISTRATION.

Devoted to the Interests of School Boards, Superintendents,  
School-Business Officials, and School Architects



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JAN 1935

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A PERIODICAL of SCHOOL ADMINISTRATION



January 1935

THE BRUCE PUBLISHING COMPANY

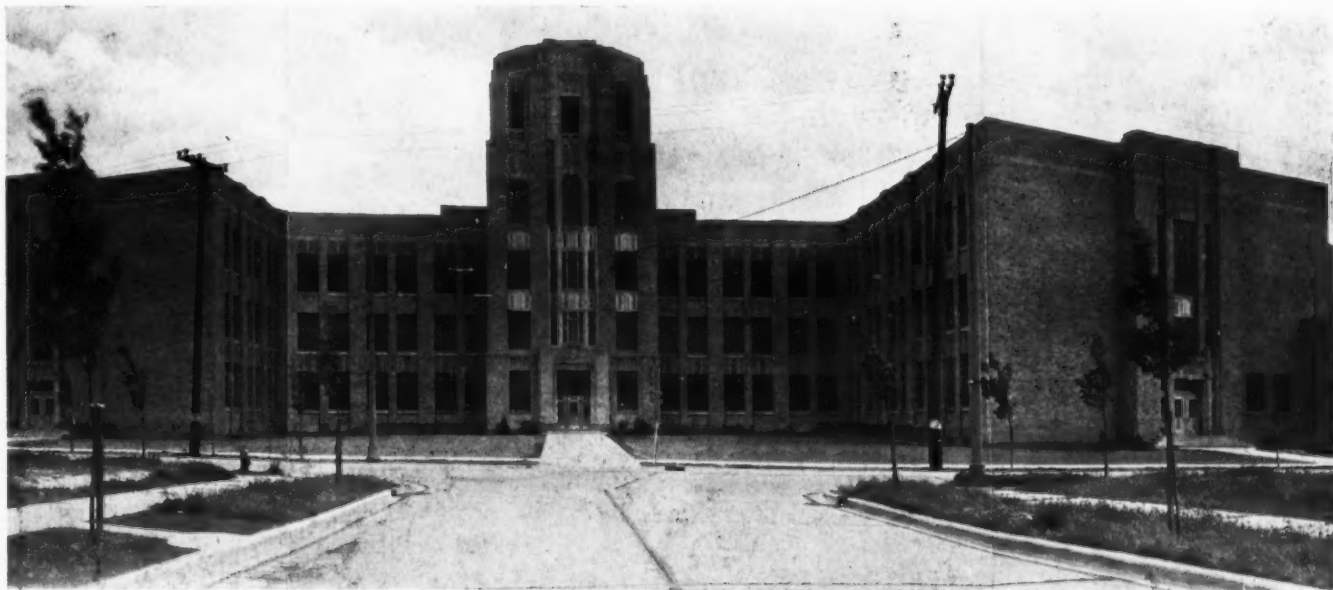
New York

MILWAUKEE

Chicago

35th ANNUAL SCHOOL BUILDING NUMBER

# JOHNSON "DUAL" HEAT CONTROL



RUFUS KING HIGH SCHOOL, MILWAUKEE, WIS.

Precise control of temperatures throughout this beautiful, modern school building is assured. 181 *Johnson Dual Thermostats* operate valves on each of more than four hundred direct radiators as well as valves and dampers in several unit type ventilating machines. . . . A complete system of *Johnson* switches and duct thermostats operate the dampers and valves at the indirect ventilating apparatus. . . . Each *Dual Thermostat* is capable of maintaining either of two temperatures, "occupancy" and "non-occupancy." The temperature setting at which each instrument operates is varied in accordance with the usage of the various sections of the building. From a central control panel, thermostats are reset independently in eight distinct groups: 1—Administrative Section, 2—Gymnasium, 3—Auditorium, 4—Cafeteria, 5—Athletic Department, 6—Library, 7—Classrooms on one exposure, 8—Classrooms on another exposure. . . . Plans for this building were prepared by the Bureau of Buildings and Grounds, Milwaukee Board of School Directors, B. J. Jelinek, Chief of Bureau, Guy E. Wiley, Architect.

Especially desirable in school buildings is *JOHNSON Dual Control* which allows heating occupied rooms to a "normal," 70 degree temperature while unused sections of the building are maintained at 50 degrees. At night, the entire building is carried at the reduced temperature, an "economy level" from which it is neither difficult nor expensive to re-heat in the morning. Separate steam mains are not required. The *Dual Thermostats* are connected in groups arranged in such a way that rooms used during evening hours, or at other odd times, may be handled separately. Switches at a central location select the normal "occupancy" temperature or the reduced "economy" temperature for the thermostats in each group. Single rooms may be cut from the group operation by means of a push button on each thermostat, furnished in those cases where such flexibility is desirable.

SINCE  
1885

**JOHNSON SERVICE COMPANY**


MILWAUKEE, WIS., AND PRINCIPAL CITIES



**JOHNSON AUTOMATIC HEAT & HUMIDITY CONTROL**

*for Individual Rooms . . . for Air Conditioning . . . for Heating Zones*





*It is not a  
matter to be taken  
lightly, the confining  
of children under  
artificial surroundings  
during the most  
active time of  
their lives.*

**THE HERMAN NELSON  
SYSTEM OF AIR CONDITIONING FOR SCHOOLS**



## IN WHOSE HANDS IS THE SAFETY OF THESE CHILDREN?

So many different kinds of accidents — nearby, or even miles away — can cause an interruption in the normal electric current supply. And when a crowded assembly room is plunged in sudden darkness, there is always danger of fire, disorder, and perhaps personal injury.

Utility companies take every precaution to prevent such occurrences, but they cannot be responsible for the effects of storms, accidents and fires. Safety, in such cases, is in the hands of the schools themselves.

The most modern and dependable protection is an Exide Keepalite Emergency Lighting Battery System. Operating instantly and automatically upon any interruption in the normal current supply, it provides abundant light. At an operating cost of less than one cent a day, you can enjoy this protection. Write for new bulletin on Exide emergency lighting.



## Exide Keepalite EMERGENCY LIGHTING SYSTEMS

**\$150 AND UP**

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia  
The World's Largest Manufacturers of Storage Batteries for Every Purpose  
Exide Batteries of Canada, Limited, Toronto

## Yes — Kewaunee Furniture Does Get Old

Kewaunee Laboratory Furniture is built to last for many years. It is designed and so constructed that it can endure the severe strain of daily use in school and laboratory. In fact, it is not unusual for Kewaunee Furniture to be in constant use for 25 to 30 years.

Kewaunee Created Equipment is of the finest design, materials and workmanship. It provides every desired convenience, permits more economical use of floor space, handles more students per day, and because it is always pedagogically correct, large classes are handled more efficiently.

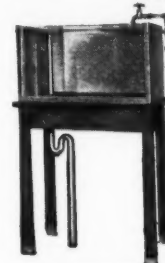
If your school needs new Laboratory, Vocational, Home Economics or Library Furniture, be sure to write for our big catalog and prices.



Biology Table No. C-307



Two Student Domestic Science Table No. BL-78



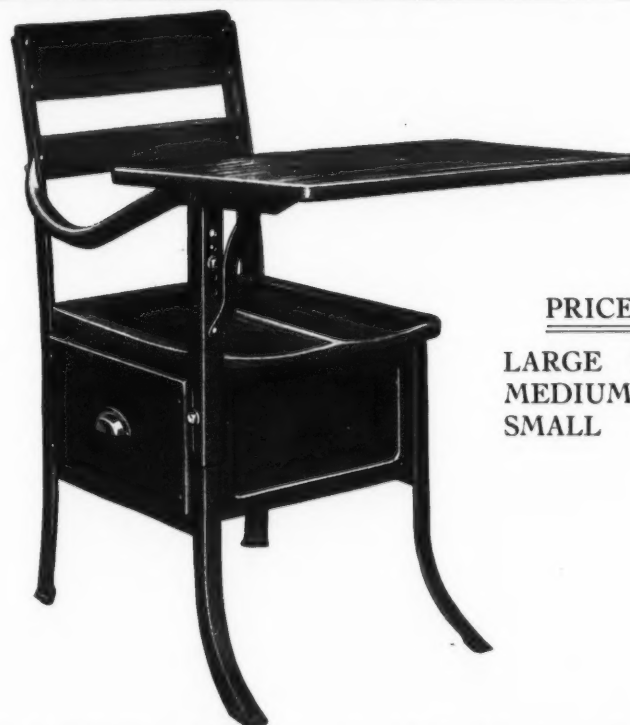
Aquarium No. BL-34



Drawing Table No. BL-94

**Kewaunee Mfg. Co.**  
LABORATORY FURNITURE EXPERTS

C. G. Campbell, Pres. and Gen. Mgr. — 101 Lincoln St., Kewaunee, Wis.  
Eastern Branch: 220 E. 42nd St., New York, N. Y.  
Mid-West Branch: 1614 Monroe St., Evanston, Ill.  
Representatives in Principal Cities



### PRICES

LARGE \$5.15  
MEDIUM 4.85  
SMALL 4.50

On April 18, '34, Detroit, Mich., ordered 2,300 of these movable desks, making 60,844 of this make in use in the public and parochial schools of Detroit and its suburbs.

On June 18, St. Louis, Mo., ordered 1,100.

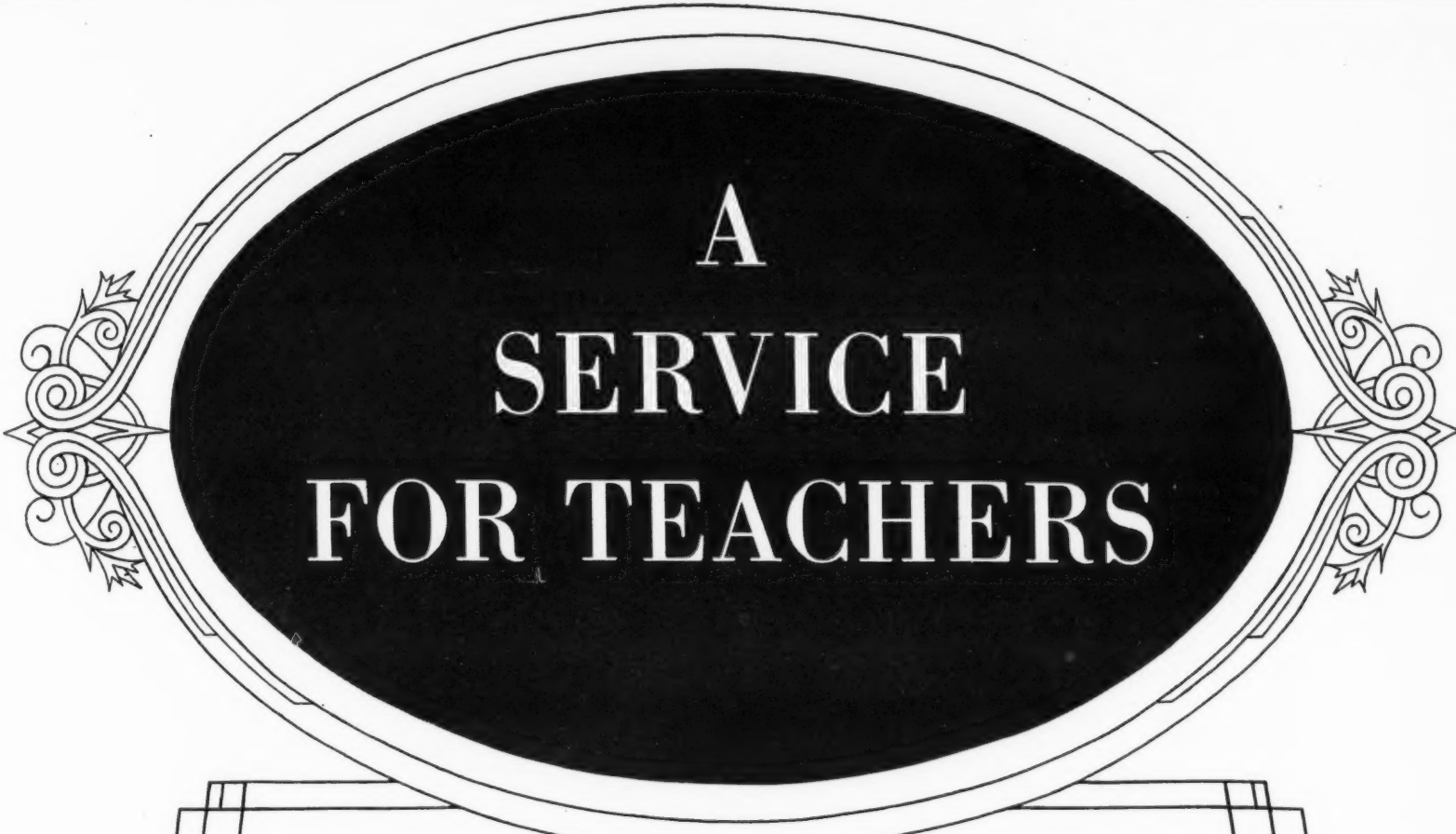
On October 16, state of North Carolina adopted this make of movable desks for the public schools of that state.

Between these dates, April 18, '34, and October 16, '34, NINE HUNDRED NINETY-SEVEN (997) other schools have ordered our Columbia Movable Desks.

Compare our prices with other quotations on any type of seating. Plywood scroll seat furnished if desired.

**Columbia SCHOOL FURNITURE Corporation**  
INDIANAPOLIS, INDIANA





# A SERVICE FOR TEACHERS

Here announced is a new department of education, at Mimeograph headquarters. A department of education! Directed by practical workers of long experience in the classroom and administrative field. Counseled by educators of national reputation. It is a sincere and sympathetic advancement, at the service of all school workers to whom the Mimeograph is available. The modern teaching aids created by this department are now ready for distribution to teachers and school executives. Complete information free. Write today. And learn about alluring seat-work projects, new outline maps and other up-to-the-minute classroom needs. These may be produced with surprising ease and economy in your own Mimeograph workroom, from the new prepared stencils, stencils skilfully done by experts and ready for instant service. A revolutionary advance, to make your work easier, nicer and more effective. An important and welcome addition to the Mimeograph process. Let us show you how the prepared stencil is lightening the burden of school work. For full particulars, write today to A. B. Dick Company, Chicago.

## M I M E O G R A P H



## Floored with

**BRUCE**

**NORTHERN HARD  
MAPLE**

—Dedicated to the education of Youth of today and tomorrow, Milwaukee built its new Rufus King High School to endure. A feature of utmost importance was that its floors should successfully withstand the grinding tread of a billion steps.

—Here more than 30,000 feet of Bruce Northern Hard Maple Blocks were used—to give floors a lifetime of beauty and unparalleled utility.

—Bruce Maple Blocks met the need as could no other flooring. It was the one type of floor that could be depended upon to be wear-proof . . . insure stable anchorage for equipment . . . be easy to keep clean . . . and yet possess the elements of beauty that would be in keeping with such a magnificent building. —And thus the Rufus King High School is added to the list of hundreds of other such institutions that have selected Bruce Northern Hard Maple—the flooring that lasts a lifetime.



### BRUCE Maple Blocks

Bruce Maple Block floors are the ideal type for school buildings. They are quiet—easy to keep clean—fire resistant—wear-proof—free from squeaks—beautifully patterned—and economical to lay over any type sub-floor. Maintenance cost is extremely low, and portions are easily replaced in case of accidental damage. Each Bruce Block is steel spline locked—a feature that guarantees an even floor.



The above scene shows a typical Rufus King class room—where floor beauty and utility are combined in a Bruce Maple Block floor. Pictured below (left) is the imposing entrance-way to the Rufus King High School.

**E.L. BRUCE CO.**  
EXECUTIVE OFFICES: MEMPHIS, TENN.  
M. F. M. A. MEMBER

### Read - - -

Turn to page 44 and read the interesting story of this magnificent new educational structure. Notice the Bruce Maple Block floors pictured in this article. If you have a flooring problem, we would be pleased to have you consult us—either directly or through your architect.



TRADE **YALE** MARK  
**COMBINATION  
PADLOCK**  
at a Lower Price!

**B**ECAUSE of an urgent demand on the part of school officials and school children (who frequently have to buy their own locker padlocks) for a lower priced padlock, we have developed this new lock. It has several exclusive features and 10,000 combinations are possible.

**YALE COMBINATION  
PADLOCK No. 429**

1-13/16" nickel bronze case with satin finish, cadmium plated; 9/32" diameter shackle with 1" clearance; when closed it is automatically locked and combination dispersed; shackle cannot be locked out of case.

SEE THE EXHIBIT OF YALE  
SCHOOL LOCKS AT THE  
CONVENTION

of the Department of Superintendence of the N.E.A.

We will display and demonstrate this new lock and other YALE locker locks at Booth No. 1-2 and 1-3, Atlantic City, Feb. 22nd to 28th.

**THE YALE & TOWNE MFG. CO.**  
STAMFORD CONNECTICUT



**EASY  
CLEANING  
ANYWHERE**

Light enough to be moved quickly—powerful enough to clean any surface—that is the story of the

**SPENCER HEAVY DUTY  
PORTABLE VACUUM CLEANER**

It has an effective dust collector—is easily cleaned and is thoroughly practical.

Costs little and will last for years.

Demonstration on request.

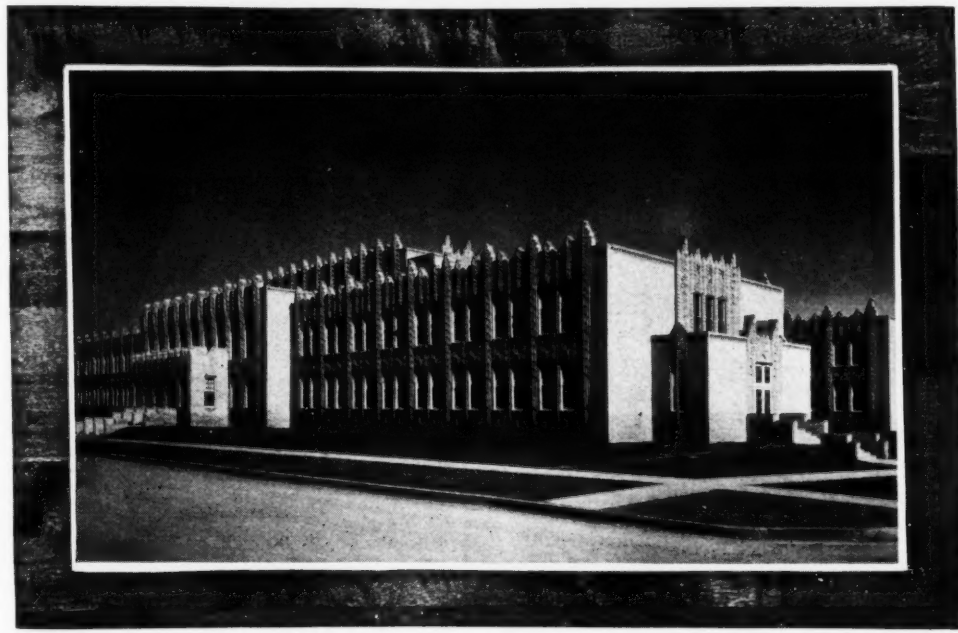
**THE  
SPENCER  
TURBINE  
CO.**

**SPENCER**  
CENTRAL  
CLEANING SYSTEM

**HARTFORD  
CONN.**



Horace Mann Junior  
High School  
Denver, Colorado



T. H. Buell & Co.  
Architects  
DENVER, COLORADO

## Based on Years of Experience School Officials and Architect Again Agree on Floors of Maple

Few problems in school construction require deeper consideration than that of selecting the material for floors. How will the flooring affect school room routine—the health and efficiency of pupils? Will it be an economy over a period of years? How easily can it be kept clean? Will it provide firm anchorage for desks? Will it simplify or hinder other construction work? These are some of the questions that must be asked—and answered.

Fortunately, one flooring material gives the proper answer to all these questions, *Northern Hard Maple*—the flooring material that combines warm, dry, cushioning effect beneath the feet, with lasting wear and smoothness.

Northern Hard Maple is resilient, tough-fibred, tight-grained. It will not splinter or develop ridges when subjected to the scuffing and pounding of youthful feet. It actually

In the Horace Mann Jr. High School, Maple flooring was specified for the gymnasium and class rooms throughout the building.

From our past experience we were confident that Maple was the proper wood to use for this purpose due to its hard, long-wearing surface as well as smooth, clean appearance regardless of the type of finish applied. The close grained, tough character of Maple prevents splintering and withstands the hard treatment to which a schoolroom is subjected.

The local school officials whose knowledge of school construction is gained through years of experience fully approved the use of Maple.

T. H. BUELL & CO., ARCHTS.

outwears stone! Maple, moreover, is exceptionally easy to keep clean. Its smooth surface offers no lodging spaces for dirt and dust.

Consider these advantages of Northern Hard Maple. Consider, too, the fact that it provides firm anchorage for desks and does not interfere with other construction work. Get all the facts about this unique flooring material. Consult your architect.

### GOOD SERVICE FINISHES ARE AVAILABLE

—especially adapted to classroom floors of Maple. These finishes seal the surface of hard maple, keep out dirt, resist soil stains and prove non-slippery. They will not mar, scratch or flake off. That's why they are easy to clean and maintain at low cost.

# Floor with Maple

The letters **MFMA** on Maple, Beech or Birch Flooring signify that the flooring is standardized and guaranteed by the Maple Flooring Manufacturers Association, whose members must attain and maintain the highest standards of manufacture and adhere to manufacturing and grading rules which economically conserve these remarkable woods. This trade-mark is for your protection. Look for it on the flooring you use. **MFMA**



Members of the Maple Flooring Manufacturers Association have contributed many thousands of dollars and years of work to standardize and improve the manufacture and grade uniformity of Northern Maple, Beech and Birch Flooring. The following manufacturers only are licensed to use the Association Trade-mark **MFMA**. Specify **MFMA** on the flooring you use.

Beck, August C. Company	Milwaukee, Wis.
Brown Dimension Company	Manistique, Wis.
Bruce, E. L. Company	Memphis, Tenn.
(Mill at Reed City, Mich.)	
Cobbs & Mitchell, Inc.	Cadillac, Mich.
Connor Lumber & Land Company	Laona, Wis.
(Sales Office, Marshfield, Wis.)	
Cummer-Diggins Company	Cadillac, Mich.
Farrin Lumber Co., M. B.	Cincinnati, Ohio
Holt Hardwood Company	Oconto, Wis.
Kerry & Hanson Flooring Co.	Grayling, Mich.
Mitchell Brothers Company	Cadillac, Mich.
Northwestern Cooperage & Lumber Co.	Gladstone, Mich.
Oval Wood Dish Corp.	Tupper Lake, N. Y.
Robbins Flooring Company	Rhineland, Wis.
Sawyer Goodman Company	Marquette, Wis.
Stephenson Company, I.	Wells, Mich.
West Virginia Pulp & Paper Co.	Cass, W. Va.
Wells, J. W. Lumber Co.	Menominee, Mich.
Wisconsin Land & Lbr. Co.	Hermansville, Mich.
Yawkey-Bissell Lumber Co.	White Lake, Wis.

Let our Service and  
Research Department assist you with  
your flooring problems.  
Write us.

**MAPLE FLOORING  
MANUFACTURERS ASSOCIATION**  
1780 McCormick Building  
Chicago, Illinois



*Save this  
convenient  
check list:*

Refer to it  
when you select  
Heating and  
Ventilating  
Units

*Send for Our  
Free Illustrated Booklet*

Address JOHN J. NESBITT, Inc.  
Holmesburg, Philadelphia, Pa.,  
or 11 Park Place, New York City

#### ESSENTIAL FEATURES OF TODAY'S VENTILATING UNIT

##### Air-stream Temperature Control ☐

To prevent cold drafts by limiting the minimum temperature of admitted air.

##### Room Temperature Control ☐

To prevent overheating under all conditions.

##### Adjustable Damper ☐

To admit all outdoor air, or room air and outdoor air in fixed or variable proportions.

##### High-velocity Vertical Discharge ☐

To insure thorough air mixture and proper motion.

##### Quiet Operation ☐

By the use of low tip speed fans and acoustic insulation.

##### Long, Trouble-free Life ☐

Proved dependability of all component parts—motor, fans, radiator, etc.

##### Adaptable to Tomorrow's Needs ☐

Damper adjustable to conditions of future State laws.

##### Space Economy and Beauty ☐

Casing design that requires the least aisle space and has the most eye appeal.

##### Low Fuel Cost ☐

By confining air-stream and room temperatures to narrower limits—Syncretized Air.

**All These Features and  
More Are to be Found in  
NESBITT SYNCRETIZERS**

*Syncretized Air*

is produced by

**Nesbitt-built Universal and Buckeye  
Heating and Ventilating Units**

Sold by American Blower Corp., John J. Nesbitt, Inc., and Buckeye Blower Co.



## A New Deal in Drinking Fountains

As part of the equipment on P.W.A. or other projects be assured of long life satisfaction by specifying the Rundle-Spence line of school drinking fountains noted for appearance, sanitation and dependability.

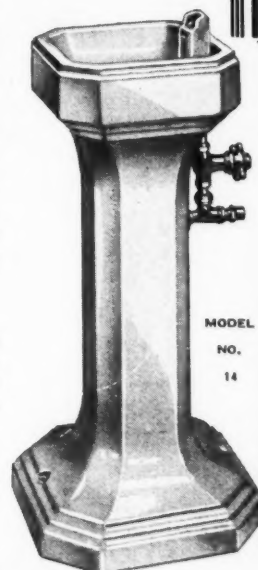
School officials and architects planning new buildings or replacements in old ones will find the comprehensive R-S line adapted to their requirements.


The models shown here are available in six attractive colors; and each fountain has the R-S angle stream non-squirting jet which extends above the bowl rim. The drinking water cannot possibly be contaminated in the event the drain becomes clogged.

Whatever your needs for sanitary fountains and fixtures, RUNDLE-SPENCE has a model to meet your requirements. Check our catalog and specify RUNDLE-SPENCE.

**RUNDLE-SPENCE  
MFG. CO.**

445 NO. FOURTH ST., MILWAUKEE, WIS.





ACCURACY DURABILITY

**No other  
INVESTMENT  
Pays Larger Dividends**

— than Powers Automatic Temperature Control for heating or ventilating systems.

*Fuel Savings* that result from eliminating OVER-Heated rooms, often pay back the cost of Powers Control in 1 to 3 years.

*Better Health*—Colds and other ills are reduced where temperature is Accurately controlled at the proper point.

*Improved Efficiency*—Correct room temperatures promote mental and physical efficiency.

WRITE FOR ESTIMATE or phone our nearest office (see your phone directory).

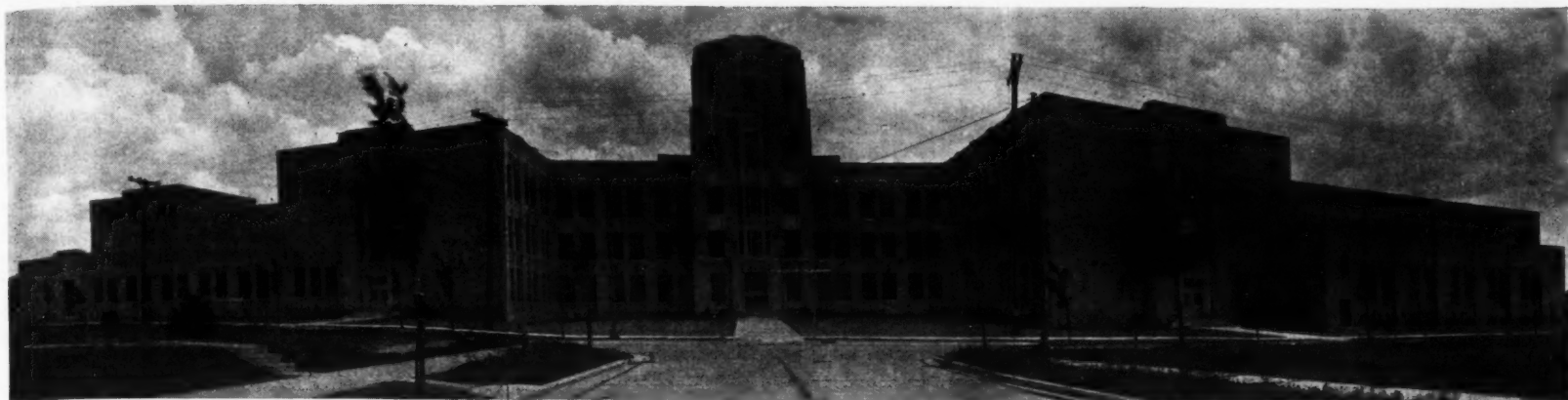
**THE POWERS REGULATOR CO.**

40 Years of Specialization in Temperature Control

Chicago: 2721 Greenview Ave. New York: 231 E. 46th St.

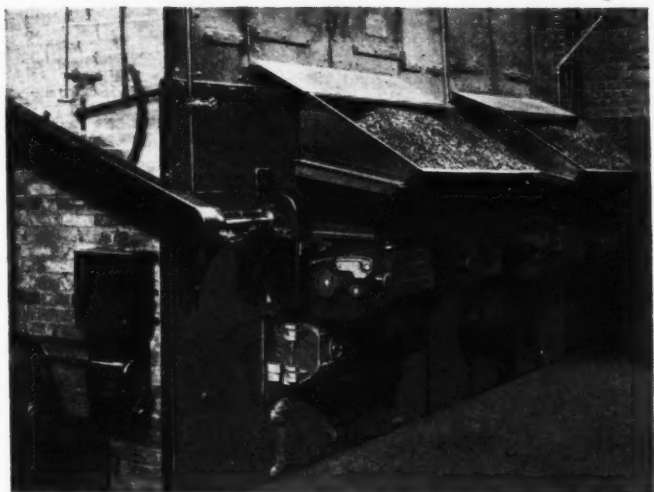
OFFICES IN 43 CITIES





Rufus King High School, Milwaukee, Wis. Designed by Bureau of Buildings and Grounds, B. J. Jelinek, Chief, G. E. Wiley, Architect, Board of School Directors.

## Four Hoffman FIRITE Stokers Are Installed in the Boiler Room of the Rufus King High School



Exterior View of Typical FIRITE Installation,

Detailed setting drawings and specifications will be furnished upon request of School Authorities. Let us co-operate with your consulting engineers on stoker problems pertaining to remodeling or new projects. Our fuel engineering service can accurately predict anticipated savings.

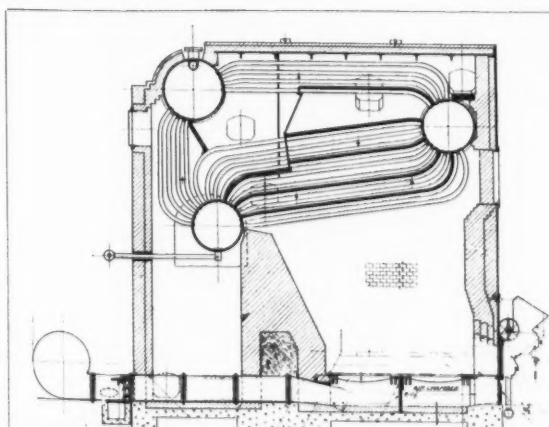
In selecting stokers for any School or similar institution, consideration should be given to the following important data and specifications should be so written as to allow for discriminating buying rather than just buying on the lowest bid.

The stokers for Schools should be fully automatic, so that the boiler room attendant can undertake other duties.

Stokers should be selected that will successfully burn local coals (Save money on freight).

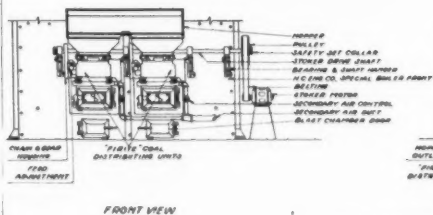
Stokers should be free of maintenance to avoid costly repair bills and shutdowns and assure full use of boilers without idle standby equipment.

Stokers should be capable of quick response to fluctuating loads and stand up under high overloads in emergency. FIRITE Stokers will develop full rated capacity from a banked fire in less than fifteen minutes, and can be operated at two hundred per cent of boiler rating continuously without any difficulty.

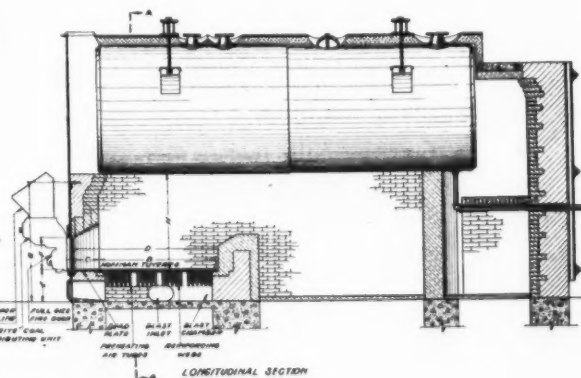


Typical application to lowhead three drum boiler

### FIRITE STOKERS Forced Draft Fully Automatic



FRONT VIEW



LONGITUDINAL SECTION

Application to H. R. T. Boiler

Inquiries should be sent to general office of the Hoffman Combustion Engineering Company, Detroit, Michigan, or to conveniently located district offices.



## HOFFMAN COMBUSTION ENGINEERING CO.

410 FORD BUILDING

DETROIT, MICHIGAN

For  
Schools  
Hospitals  
Gymnasiums  
Office  
Buildings



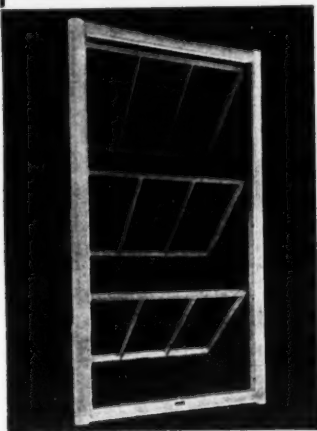
### Dalmo-Pine Craft "Automatic"

Illustrated at the left is our factory-assembled triple-sash wood window . . . all sash operated in unison by motion of the lower sash.

Opened to a predetermined position, the lower sash disconnects automatically for independent operation, leaving the upper vents in fixed open positions.

Re-connection of the lower sash is also automatic, requiring only that it be opened to the position occupied by the upper vents.

Thus, without the use of hand-operated clutches, the three vents can be set to admit fresh air, and at the same time to deflect disagreeable drafts.



*Dalmo Windows are used in more than 1000 schools and public buildings. They assure daylight illumination without glare, and natural ventilation without drafts.*

# Announcing

## DALMO-PINECRAFT

### FACTORY ASSEMBLED - PRECISION FITTED Automatic AWNING TYPE Windows

IN the new DALMO-PINE CRAFT awning-type Windows-of-Wood, the best efforts of two nationally known manufacturers are combined. Such exclusive Dalmo features as controlled illumination, draftless all-weather ventilation, and fingertip ease of operation are now supplemented by PINE CRAFT advantages — factory assembly, precision fitting, and patented wedge-joint weather-proofing. Prim-a-Tox impregnation, providing a guaranteed protection against rot and termites for 25 years, is optional.

### Two Advantages of This Dalmo-Pine Craft Union

#### STANDARDIZED QUALITY THROUGHOUT

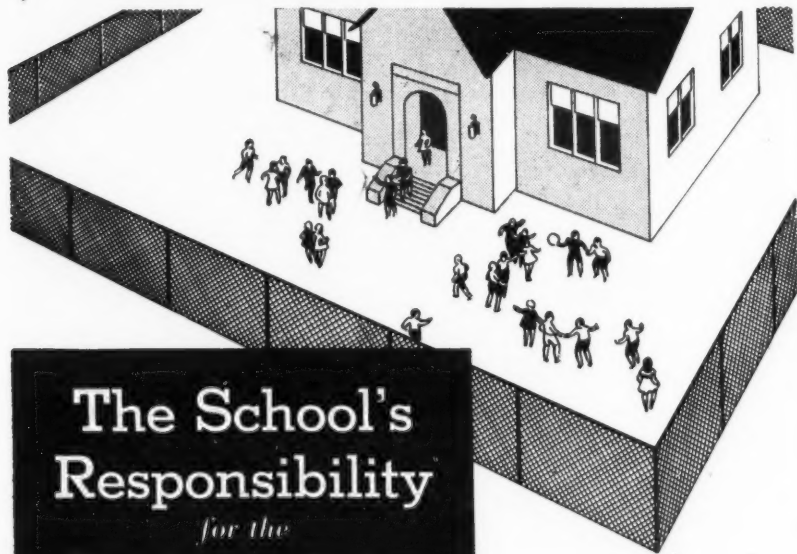
Manufactured and marketed exclusively through the PINE CRAFT organization, Dalmo awning-type windows now have the added advantage of absolute uniformity. Each window is milled to micrometer exactness, factory-fitted, weather-stripped if desired, and standardized in every detail.

#### MARKED ECONOMIES AVAILABLE

Now ANY carpenter can install America's best windows for schools, hospitals, etc.—those weather-resistant, corrosion-proof, easy-to-glaze DALMO-PINE CRAFT awning-type windows of wood. Write for details and architect's specifications.

*Made By the World's Largest Producers  
of White Pine Sash and Frames.*

**WHITE PINE SASH CO.**  
SPOKANE WASHINGTON



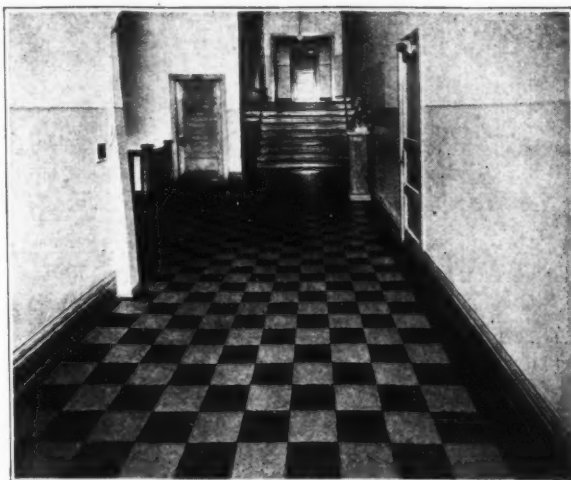
## The School's Responsibility for the Children's Safety

It is just as essential and urgent to provide for the children's safety as it is to provide the place and means to play. The cost of a fence around the school yard or playground is an insignificant item when compared with the value of human lives it will safeguard. In buying fence, specify a sturdy, well-made fence such as Pittsburgh Chain-Link. It will withstand hard usage and give many years satisfactory service with scarcely any cost for maintenance. We will be glad to estimate the cost of fencing school yards, playgrounds, swimming pools or any other public property. Your inquiry entails no obligation.

**PITTSBURGH STEEL COMPANY**  
751 Union Trust Bldg. • Pittsburgh, Pa.



Complete catalog on request



## Tile-Tex

### Resilient Floor Tile

**E**CONOMY in a floor is measured not only by first cost, but by tenure of service and upkeep costs as well.

By every standard, Tile-Tex Resilient Floor Tile gives an extra measure of economy. It's a resilient floor tile in the price range of ordinary floor coverings — its long-life endurance is free from conditioning or repairs — it is silent, sanitary, and resistant to wear, fire, and dampness — it offers charm and beauty with a wide range of patterns and color schemes.

That's why so many of America's schools use Tile-Tex — that's why it merits your prompt investigation. Write for free booklet — today!

**The Tile-Tex Company**

1233 McKinley Avenue

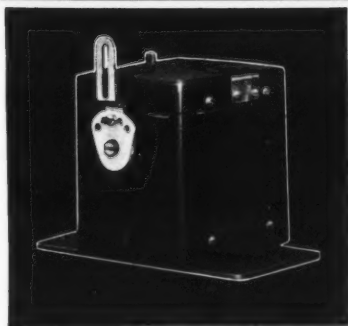
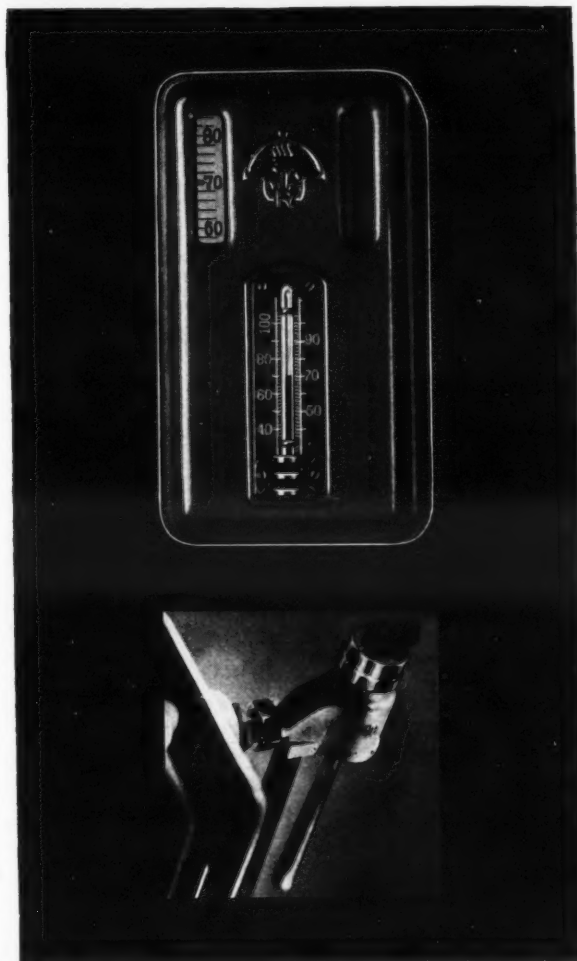
Chicago Heights, Ill.



# CONTROL COUNTS MOST IN SCHOOL BUILDINGS



IN the classroom, where young bodies must be kept healthy and young minds must be alert, the importance of proper temperature control cannot be overlooked. Minneapolis-Honeywell Modutrol Systems, tailor made for every building — old or new, large or small — provide proper temperature and ventilation control. At the same time, these modern electric systems afford fuel economies, often enough to pay their entire cost in less than one heating season. A Minneapolis-Honeywell Engineer in or near your city, can quickly show you the advantages of the Modutrol System. Minneapolis-Honeywell Regulator Company, 2830 Fourth Avenue South, Minneapolis, Minn. Branch or distributing offices in all principal cities.



## MINNEAPOLIS HONEYWELL

CONTROL SYSTEMS

## ... a SEAT for Son and a JOB for Dad

Our life is rich with celebrations. They are dramatizations of important occasions or events.

We are now approaching the celebration of the 300th Anniversary of the Establishment of the first Secondary School in this country. Since 1635 twenty-six thousand High Schools have been built.

Reports indicate that High School enrollment has increased 25% since 1930.

This means that numerous communities are lacking in High School facilities; there has been little new school house construction since 1930.

1934 is the exception. Many building projects were undertaken this past year.

The celebration of the 300th Anniversary will be an impressive one. Boards of Education will be moved by the spirit of the occasion to furnish adequate High School facilities for the young people of their community.

This would indicate we are on the eve of a new school building program.

Caution should be exercised not to build too elaborately.

"Build for Service—Not for Show" might be an appropriate slogan.

No building, however fine, is of any service to the children of the community without modern equipment.

Fifteen per cent of the building fund should be reserved for equipment purposes.

In the meantime do not forget the needs of the Elementary School Child. There are thirteen children in elementary class rooms for every three that are in high school.

By furnishing building accommodations sufficient to afford a seat for every child, jobs would be furnished for many unemployed men.

Here is a two-fold project of tremendous possibilities.

Augment education—diminish unemployment.

A SEAT for Son and a JOB for Dad.



**NATIONAL SCHOOL SUPPLIES AND EQUIPMENT  
ASSOCIATION**

176 W. ADAMS STREET

CHICAGO, ILLINOIS



**ALL** things are relative!

The users of  
**CLARIN IDEAL CHAIRS**

know them to be the most value per dollar  
of cost available.

**CLARIN MFG. CO.**

4640 W. Harrison St.  
CHICAGO, ILL.

## A new process for school annuals

Any graduating class can now have an annual to perpetuate the memory of their school mates and class activities. This new, economical process brings the Annual within reach of every school.



Teachers can make its publication a part of the curriculum.

A new, illustrated booklet is just off the press giving complete details. It is yours for the asking.

*By the Welch Process*

the low cost including photographic reproductions is simply the surprise of everyone.

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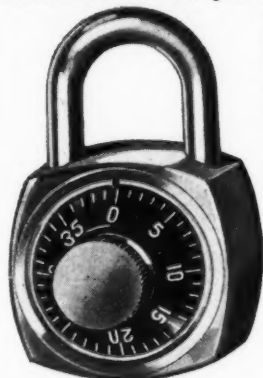


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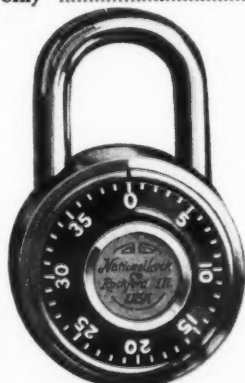
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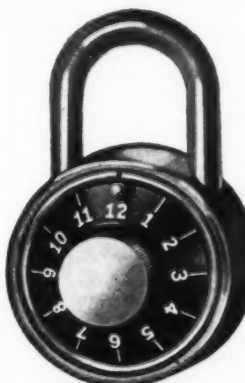
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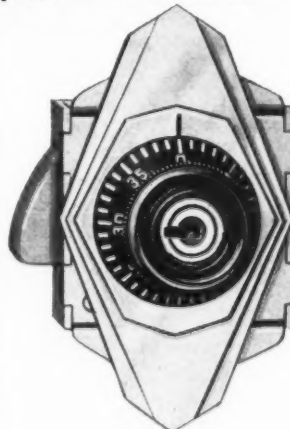
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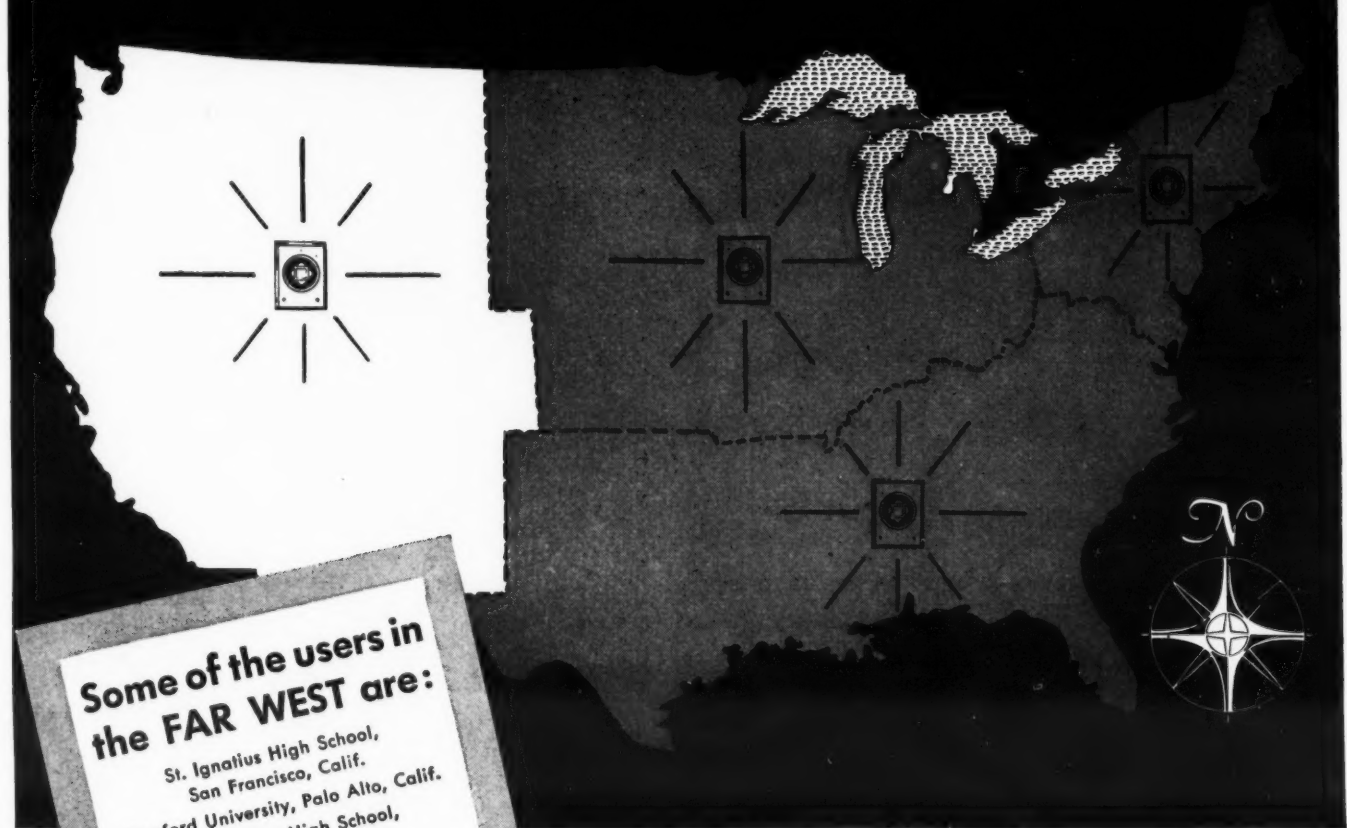
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# THE AMERICAN School Board Journal

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## TABLE OF CONTENTS

Cover: Front Entrance, Rufus King High School, Milwaukee, Wisconsin	
School Architecture That Will Live <i>Ernest Sibley</i>	15
Comparing School-Building Costs <i>G. E. Wiley</i>	17
How Hempstead "Sold" Its School-Bond Issue <i>Supt. William A. Gore</i>	20
A Century of Progress in Schoolhouse Construction <i>Forest R. Noffsinger</i>	21
Air Conditioning and the Chimney Action of School Buildings <i>John M. Robb</i>	23
New Lane Technical High School, Chicago, Illinois <i>Thomas J. Higgins</i>	25
Senior-Junior High School, Second and Lee Streets, Louisville, Kentucky <i>Samuel D. Jones</i>	29
The Gymnasium in the Schools of Today <i>Ralph C. Lewellyn</i>	33
Granite Falls (Minnesota) School Building Achieves Completeness and Flexibility <i>Samuel A. Challman</i>	37
Recreational Planning in Relation to School-Plant Planning <i>George D. Butler</i>	38
The Rye Consolidated School at Rye, New Hampshire <i>Roy W. Gillmore and Harold E. Mason</i>	39
Junior High School at Normandy, Missouri <i>William B. Ittner and Fred B. Miller</i>	41
How the Normandy School District Carried a Bond Campaign <i>Mary Holbrook</i>	42
The Rufus King High School (Milwaukee, Wisconsin) <i>W. W. Theisen</i>	44
The New York Street Grade-School Building, Lawrence, Kansas <i>Thomas Larrick</i>	49
California Spends Millions to "Earthquake-Proof" School Buildings	52
The Department of Superintendence Meets at Atlantic City	54

### EDITORIALS:

Present Conflicts and Tendencies in School Architecture	50
Awarding Contracts to Lowest Bidder	50
Arousing Public Sentiment in Behalf of School Interests	51
The Public Schools and Politics	51
New Books	56
Personal News	65
School Law	66
Finance and Taxation	66
Building News	68
Boards of Education	75
After the Meeting	82
Buyers' News	82

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## The School-Building Outlook for 1935

A STUDY of the school-building situation throughout the United States warrants the following observations:

In point of new schoolhouse construction the year 1935 will be more active than was the year 1934. This means that many of the projects planned last year will be completed this year.

During the year 1934 the Federal Government allocated \$181,327,542 for new schoolhouse construction. During ten months contracts amounting to \$104,006,700 were awarded and construction operations begun. The balance of the projects will no doubt reach the stage of actual building before the close of the year 1935.

The question which might be asked here is whether there is any pressing need anywhere for more schoolhousing. The answer must be given strongly in the affirmative. Information is constantly coming to the surface that in a number of cities schools are badly crowded. Also that there is need of replacing old buildings, which are not only unsuited for the sufficient operation of a school but buildings which are insanitary, unsafe, or poorly located.

Aside from the building projects carried under the P.W.A. there has been an improvement in locally financed projects. While these projects have been undertaken in response to an urgent need for more school accommodations, they have also been encouraged by an easier money market. School bonds have been negotiated on a low interest rate—lower than even the best years of the "twenties."

Looking at the school-building situation in a prospective sense it may be said that further encouragement at the hands of the Federal Government may be expected. The National Congress, it is believed, will during the year make another appropriation for public projects to be realized in the several states.

While these projects will include sewage systems, waterworks, electric light plants, roadways, and the like, it is safe to assume that new schoolhouse projects will be liberally recognized because of their social and job-making importance.

Finally, it may be said, that the school authorities throughout the United States are in a more optimistic attitude. There is an easement in the tax situation and new schoolhouse projects are more likely to receive the popular support which they so richly deserve.

THE EDITOR.



invariably include the old as well as the new address. Complaints of nonreceipt of subscribers' copies cannot be honored unless made within fifteen days after date of issue.

Editorial Material—Manuscripts and photographs bearing on school administration, superintendence, school architecture, and related topics are solicited, and will be paid for upon publication. Contributions should be mailed to Milwaukee direct, and should be accompanied by stamps for return, if unavailable. Open letters to the editor must in all cases contain the name and address of the writer, not necessarily for publication, but as evidence of good faith.

The contents of this issue are listed in the *Education Index*. Member, Audit Bureau of Circulation and Associated Business Papers.



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# THE AMERICAN School Board Journal

Volume 90, No. 1

JANUARY, 1935

Subscription, \$3.00 the Year

## School Architecture That Will Live

*Ernest Sibley, Architect*

Public-school buildings in this land of ours, got off to a bad start, and are still struggling against the handicap.

Many of our earliest settlers were adventurers, pure and simple, content to provide for their needs in the most temporary fashion. Even our puritan ancestors, who planned for permanent colonization, did not flee to America through any cultural desires, so it is rather to be expected that in this period of our history when toil and hardship prevailed, little thought would be given to the setting up of facilities for universal education.

It is, however, a startling commentary upon this phase of our national development, that as late as 1833, more than two hundred years after the Plymouth Rock episode, Horace Mann, then Secretary of the Massachusetts Board of Education, stated that "not one-third of the public-school buildings in Massachusetts would have been considered tenantable by any decent family."

Churches in the South and meeting houses in New England, were erected as soon as the settlements were sufficiently populated. Many of these, together with houses of the seventeenth and eighteenth centuries, are accepted as our finest examples of architectural expression, to be preserved, photographed, and measured as a means of permanent record, and copied wherever good taste prevails and tested standards of beauty are sought after.

The writer has not found where a public-school building erected in the colonial period has been offered as a guide to distinctive design. No evidence that our forefathers attached sufficient importance to their houses of learning to endow them with the refinements that characterized the houses, town halls, and the churches of their day.

Therein lies the basis of the handicap under which the public-school building has labored; a traditional indifference to its esthetic and cultural possibilities, its rightful claim to embody those elements that spring from more than a desire for utilitarian service.

To this indifference two reasons can be ascribed. First, an inherited tradition that education was only for the well-to-do; for private schools were early established in homes of beauty and refinement. The old academies have charm, and the colleges which composed the beginning of our most important universities are not lacking in architectural merit.

Secondly, the public school was not an accepted institution. It was a new system faced with the necessity of making a name for itself, of proving that it was worthy to take its place along with the established order.

Concerning the measure of its success, we quote from Dr. Finley. "If a democracy were to choose a symbol which would best represent its aspirations and give record and promise of its achievement, it must select a schoolhouse. Without the schoolhouse and its ministries it is hardly conceivable that there could be a self-governing state."

The whole field of education is astir with progressive and revolutionary effort, and it

is stimulated by an aroused and sympathetic public. Education cannot function without building, and the structures that house education should logically be such as would constitute a corporate part of the child's training in esthetics, which may be defined as the love and appreciation of the beautiful.

Scores of boards of education who insist upon their teachers being qualified in the latest educational methods, who spend large sums of money on art and cultural courses, continue to erect public-school buildings that are architectural misfits, in no way reflecting the dignity, tone, or ideals of the community, nor conforming to its historic architectural background.

Hopeful signs appear here and there. More and more men and women are accepting appointment on school-building committees and inquiring why schools should be ugly.

Educated and trained architects who for many years ignored public-school work, now recognize in it problems of unusual interest. Standardization is no more. The auditorium, gymnasium, library, kindergarten, music, art, the sciences and all the other units of the modern educational program, challenge the interest and skillful ingenuity of the best designers.

Appreciative acknowledgment is made to those architects and designers who are making serious effort to create school architecture that will live, and become a part of our national contribution to artistic culture. Their offices and the schools of architecture now thriving in all parts of the country, will provide the better trained architects of the future.

So far as this brief article will permit, let us enumerate salient problems relating to school building:

### ECONOMY

First and foremost is the fallacy that beauty and economy are incompatible. Intelligently guided they will go hand in hand.

### COMPARISONS

Comparative costs of school buildings is fair and profitable only if the buildings used for comparison are identical in materials, construction, capacity, facilities, and other controlling factors. Otherwise comparisons are odious.

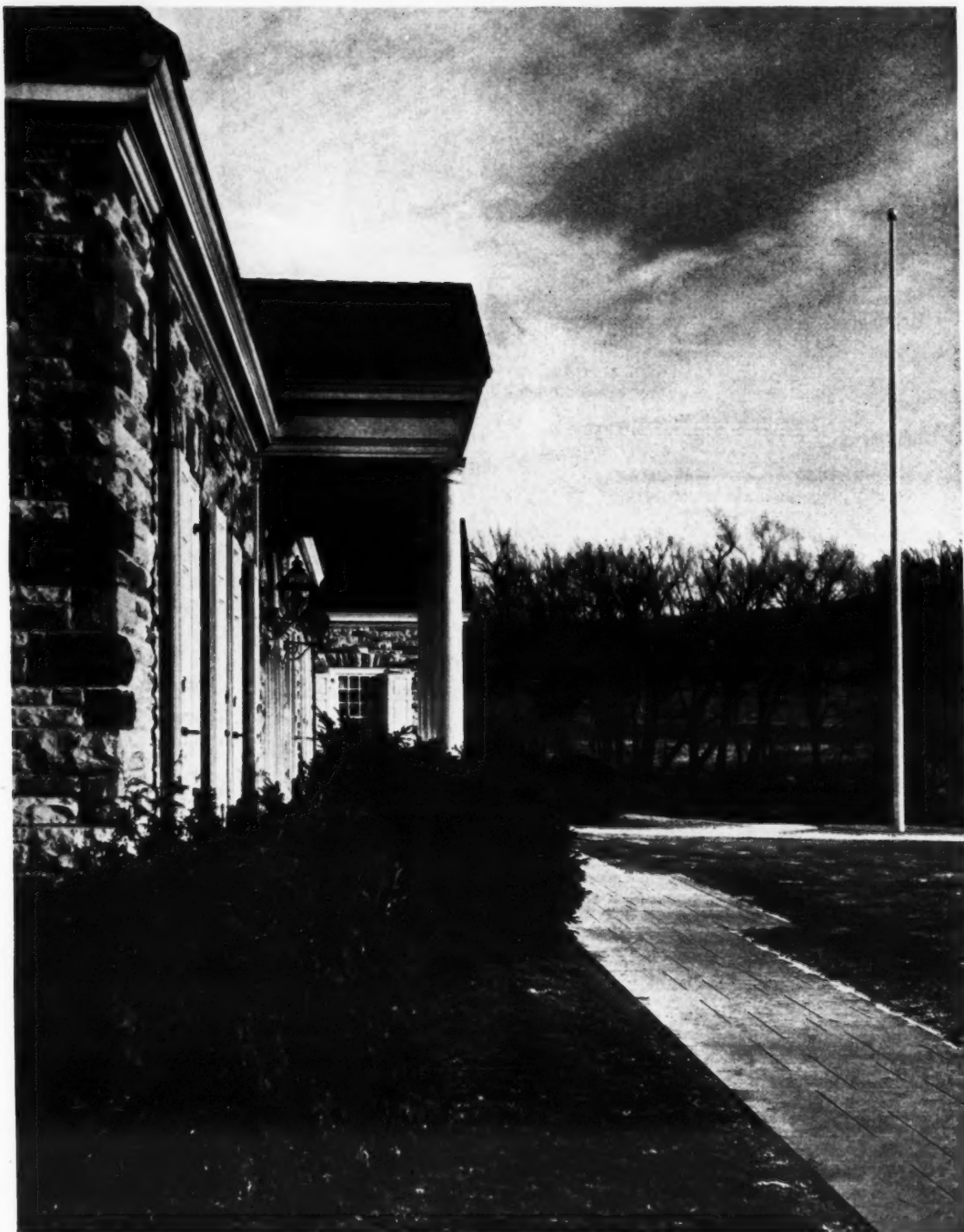
### SITE

Authorities recommend that an architect be appointed before the site for a school building is selected. Thus the board of education has the advantage of professional advice on general suitability, size, contour, exposures, drainage, and soil conditions.

### THE ARCHITECT

A board of education is always justified in retaining an architect by direct selection. Appointment can safely be made on the basis of experience in planning and designing school buildings of acknowledged beauty and economy. If the board doubts its judgment, photographs and plans of buildings completed by the architect or architects under consideration, may be submitted by a committee, to the dean of the





nearest architectural school. He would be glad to advise in the interests of better school architecture. If desirable, a local architect without school-building experience can be associated on the work in some capacity, or the school specialist employed as consulting architect.

#### PLAN

The beauty and economy of a school building definitely begins with the development of the plan. In our experience the best possible arrangement invariably suggests to the designer elevations of interest and merit. The plan may be symmetrical, or of an orderly informality. The placing of the various units with due regard to their use and to the site; the arrangement of connecting links or corridors properly sized to carry their loads; avoiding overemphasis on the larger units thereby causing loss of balance; accessibility to the building from any approach, all come in for careful consideration in the development of a school plan. At no time, however, during these preliminary studies must the architect fail to envision the design. It will fall short of his conception if the composition of the exterior pattern is an afterthought rather than an integral part of the whole. The required units for any building can be arranged by an experienced architect in several different forms, but there will be one which best exemplifies all the elements of appropriateness and economy.

#### DESIGN

Beauty is undefinable. "Though we travel the world over to find the beautiful we must have it with us or we find it not," was Emerson's expression of the knowledge that without innate love and appreciation of the esthetic there can be no beauty consciousness. Primitive man designed beautifully because he could not help it.

Out of his nature rather than his knowledge, or as Kuskin says, "Drawing may be taught by tutors, but design only by heaven."

In architecture there is no formula, no vest-pocket guide to distinctive design. The principles of composition must be understood and the designer must have acquired through education and training, a remarkable feeling for space and mass relations, scale, proportion, and adherence to style.

Choice of materials which are appropriate and inherently beautiful in color and texture, refinement and enrichment by means of detail controlled by sound judgment, all contribute to the beauty of the completed structure. In short, the architectural designer must "know how," by so small a margin is his work stamped as beautiful or ugly, distinctive or commonplace, worthy or unworthy.

#### WITHIN

Our efforts to achieve beauty are not limited. Thoughtful attention is given to harmonious equipment against backgrounds of painted and papered walls, decorative lighting, and unity between furniture and setting. Colorful hangings on stage of English room, in auditorium, cafeteria, library, kindergarten, teachers' and domestic-art rooms, cheer and inspire teachers and pupil alike, minister to their esthetic needs and create the healthful nervous reactions that psychologists prescribe. Asphalt tiles in shades of mahogany and lacquer red, laid on concrete construction, reduce the sound of traffic. Furniture with graceful turnings, finished in medium tones of walnut, blends pleasingly. Wainscots of tile, enameled blocks or special plasters in color, lockers in light, warm grays, acoustical or textual plaster for sound absorption, lighted exhibition cases suitably placed, drinking fountains in selected tones, and glimpses at strategic points into beautifully landscaped courts, all make their daily contribution to the child's happiness and artistic culture, and as has been repeatedly proved, with reasonable expenditure.

#### THE MODERNISTIC

We cannot if we would, escape the traditions and precedents of other centuries. The fundamental principles of architecture make the same demands upon the worker in the modernistic as in the traditional styles. If an architect has successfully adapted the so-called colonial style to his school-building design, he can be trusted to apply the same rules for mass, grouping of motifs, color value, or proportion of voids to solids, to his modernistic architecture, and with good effect.

When design goes wrong, it matters little what style was attempted.

#### NEW MATERIALS

The materials which are commonly called "new" are essentially the old in new dress. The changes and improvements have been brought about partly through the demands of modern education.

Educators studying all phases of child welfare have called upon architects and builders to provide for school buildings, materials that were more beautiful, quieter, and of greater durability.

The fundamental materials of construction, such as reinforced concrete, steel, stone, brick, terra cotta, wood, plaster, and slate, are not new, but modern methods of manufacture and erection have improved their quality and broadened their use. Substitutes for time-tested products are continually in process of invention and development. Some will be accepted, others will be "recommended for oblivion."

Soundproof folding partitions between classrooms permit larger groups in such subjects as English, music, art, and social studies,

(Concluded on Page 75)



# Comparing School-Building Costs

G. E. Wiley, Architect, Architectural Division, School Board, Milwaukee, Wisconsin

Whenever a major new school building is erected, comparisons of the cost of the new building with the cost of other buildings are inevitably made. These comparisons are usually based solely on the actual (or more often rumored) contract cost in dollars and cents, regardless of the time when the buildings were erected or of their educational content.

Few laymen, and many educators and architects as well, have any very definite idea of how a fair comparison may be made, and of those who may understand this problem few are in possession of the necessary fundamental facts. Even when these facts are known, a fair comparison of the cost of different buildings can only be made after careful study.

## Difficulties of Comparison

To compare the cost of two high-school buildings, each supposed to accommodate the same number of pupils, the one built in 1914 and costing \$450,000, the other built fifteen or twenty years later and costing \$1,000,000 or more, will require the consideration of several factors. The general public belief will be that the later building costs twice as much as the earlier one. The school administration, architects, and all connected with the building program will be considered guilty of unjustifiable extravagance, although it may be admitted that the new building contains many improvements over the old one.

Of several buildings in the same community, it is quite probable that they will all vary in size, and be built at different times and possibly be of several types of construction. The older buildings may have high pitched roofs and the newer ones flat roofs with a low attic, and there may be many other differences.

In order to compare these buildings it will be necessary to find some common basis or unit of construction cost, which may be applied to any building and which will indicate the cost of each adequately and be easily understood.

A number of units are commonly used, such as the cost per room, the cost per pupil, the cost per square foot of floor or building area, or the cost per cubic foot.

None of these units provide any correction to offset the fluctuating building-construction price level, and all are more or less faulty in other ways. It is difficult to calculate the cost per room when the room requirements vary so greatly as do those of a modern high school. It is difficult to determine the cost per pupil when the pupil capacity may vary with different methods of administration, the teacher load, or the number of periods per day. There is also

TABLE I. Complete Building Cost  
Cost of Milwaukee Junior and Senior High Schools for Twenty-Year Period 1912-1932

Date Building Was Started	Name of Building	Total Net Construction Contract Cost	Adjusted Total Cost to 1926 Level	Educational Area in Square Feet	Cost Per Sq. Ft. Ed. Area
October, 1912	RIVERSIDE Senior High	\$ 475,137.06	\$1,026,046.66	86,305	\$11.89
December, 1913	WASHINGTON Senior High	542,514.20	1,141,630.58	95,668	11.93
November, 1917	BAY VIEW Senior High	1,072,973.72	1,216,488.74	106,961	11.37
September 2, 1924	ROOSEVELT Junior High	600,459.70	604,303.24	53,336	11.33
December 1, 1925	KOSCIUSZKO Junior High	566,722.51	616,308.57	50,487	12.21
January 5, 1926	PECKHAM Junior High	593,023.56	591,108.02	55,366	10.68
January 3, 1928	LINCOLN Jr.-Sr. High	1,174,238.31	1,302,860.25	105,654	12.33
March 6, 1928	WALKER Junior High	891,960.29	904,253.73	76,623	11.80
January 6, 1931	STEUBEN Junior High	835,476.51	883,358.47	80,144	11.02
August 4, 1931	SOLOMON JUNEAU Jr.-Sr. High	908,393.40	840,396.89	70,063	11.99
February 2, 1932	RUFUS KING Jr.-Sr. High	1,087,742.61	1,161,952.00	110,361	10.53

the constant tendency to accept the enrollment as pupil capacity, whereas the legal capacity as set up by state or other codes is the real capacity. When enrollments are high, greatly in excess of the legal capacity as they often are, this enrollment is apt to be considered not the overload it is but the actual pupil capacity. Legal capacities in different states also will vary. It is difficult to make satisfactory comparisons on any total floor- or building-area basis when poor planning through an undue proportion of unusable areas will favorably influence the result. It is difficult also to call the most generally used unit of all, the cost per cubic foot, a satisfactory unit when it too is so directly affected by poor planning resulting in an excessive unused building volume, such as contained within high pitched roofs or in unused basements.

## A Sound Unit Suggested

School buildings are usually built for educational purposes primarily, if not solely. This being so, it would seem that a sound unit measure of building cost would be arrived at by determining the cost per square foot of educational area. A definite and generally accepted basis for determining what educational area consists of is set up in a report by the National Education Association.<sup>1</sup> Though this report may be open to criticism, it is widely known and with it as a guide educational areas may be computed on a comparable basis.

In comparing costs, it is of fundamental im-

<sup>1</sup>Report of Committee on Schoolhouse Planning, by Frank Irving Cooper, Chairman, National Education Association, Washington, D. C., 1925.

portance, of course, that the same cost items be used for each building or as nearly the same as can be obtained. There is, however, another matter of even more importance and that is the variation in the value of the construction dollar. In America we are accustomed to think of the dollar as always a dollar or 100 cents. As a matter of fact, this dollar in 1926 was worth somewhat less than one half of the 1913 dollar, as shown by increase of prices. To compensate for this variation in value, a device has been developed for adjusting costs to a uniform dollar value or uniform price level known as the "cost index number." These numbers are calculated in relation to some fixed price level as a base.

Various "cost index numbers" have been developed. Probably that most widely known in the construction industry is that of the *Engineering News Record*, hereinafter alphabetically referred to as the ENR Cost Index. This is based on the average level for 1913 taken as 100, and is a national index of general construction cost in the United States. There are various other cost index numbers not national in character, but they all generally agree with the ENR Index. This index is made up of components weighted according to their relative importance. These are structural steel priced at Pittsburgh, 2,500 pounds; cement priced at Chicago, 6 barrels; lumber priced at New York, 600 board feet; common labor, 200 man-hours. The labor element is priced at the average rate for common labor in twenty cities. These items are repriced each week and the Index number recalculated.



BAY VIEW SENIOR HIGH SCHOOL, MILWAUKEE (1917)



RIVERSIDE SENIOR HIGH SCHOOL, MILWAUKEE (1912)



KOSCIUSZKO PREVOCATIONAL (JUNIOR HIGH) SCHOOL, MILWAUKEE (1925)



PECKHAM JUNIOR HIGH SCHOOL, MILWAUKEE (1926)

### Cost Index Numbers Applied to a City

Where a minimum-wage law is in force, the index must be corrected to the minimum-wage base for labor. When such corrections are required, it is possible to obtain the labor rates used by the *Engineering News Record*, deduct them from the index and substitute for this component a labor cost based on the local legal minimum wage. The accompanying graph shows the variation in the construction-cost-price level from January, 1914, to December 1, 1934. In this graph, correction has been

to the current Index number, which is kept up-to-date and published each week in the *Engineering News Record*.

There has been a rather general reference to the average price level of 1926 as a desirable and satisfactory general business condition. In the tables of comparative building costs of Milwaukee schools the yearly average for 1926 (208.03) is used as the basis of comparison. In adjusting the cost of a building or any contract on this building to any given base, a simple procedure is to divide the base index num-

$$\frac{208.03}{87.87} \times 10,000 = \$23,663.36$$

If the building cost as adjusted to any given basis by the use of the ENR Cost Index number is divided by the educational area as set up by the Cooper report, a definite national unit of comparison is established. By the use of this method, the changing value of the construction dollar is taken into consideration, and efficiency in planning also contributes directly to a favorable result. On the basis of results thus obtained, it is possible to discover which building is the most economical in cost.

TABLE II. Construction Contract Costs Only  
Cost of Milwaukee Junior and Senior High Schools for Twenty-Year Period 1912-1932

Date Building Was Started	Name of Building	Total Net Construction Contract Cost	Adjusted Net Const. Contract Cost to 1926 Level	Educational Area in Square Feet	Cost Per Sq. Ft. Ed. Area
October, 1912	RIVERSIDE Senior High	\$ 475,137.06	\$1,002,333.64	86,305	\$11.61
December, 1913	WASHINGTON Senior High	514,317.02	1,113,433.40	95,668	11.64
November, 1917	BAY VIEW Senior High	1,072,973.72	1,163,377.38	106,961	10.88
September 2, 1924	ROOSEVELT Junior High	600,459.70	591,557.15	53,336	11.09
December 1, 1925	KOSCIUSZKO Junior High	566,722.51	572,387.96	50,487	11.34
January 5, 1926	PECKHAM Junior High	554,662.83	552,747.29	55,366	9.98
January 3, 1928	LINCOLN Jr.-Sr. High	1,174,238.31	1,197,191.72	105,654	11.33
March 6, 1928	WALKER Junior High	840,913.57	853,207.01	76,623	11.14
January 6, 1931	STEBEN Junior High	835,476.51	818,706.78	80,144	10.22
August 4, 1931	SOLOMON JUNEAU Jr.-Sr. High	850,884.77	782,888.26	70,063	11.17
February 2, 1932	RUFUS KING Jr.-Sr. High	1,087,742.61	1,022,661.72	110,361	9.27

made for the Milwaukee Board of School Directors' minimum-wage resolutions as adopted at two different times. In order to utilize the ENR Cost Index Number for comparisons, reference must be made to the monthly tabulation of these numbers as published<sup>2</sup> and if necessary

<sup>2</sup>1934 Edition *Construction Costs 1910-1933*, by Engineering News Record, New York, Page 11.

ber by the index number current when the contract was awarded, and multiply the actual contract amount by this quotient, the "Adjustment Factor" of Table III. The result thus obtained is the adjusted cost on the given basis. Thus a \$10,000 contract let in June, 1914 (Index 87.87), becomes \$23,663.36 on the 1926 average level (208.03).

### What Comparisons Include and Fail to Include

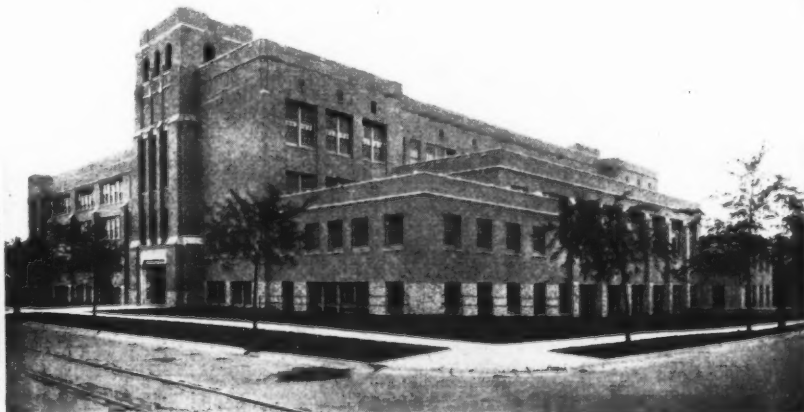
In this method of comparing costs one important element is omitted, and that is quality of construction. Not only is there no measure of quality, but there is also no measure of the amount of fixed educational equipment, which is built in as a part of the building construction. In Milwaukee's later buildings this is considerable when compared to the amount included in the earlier structures. These items could be covered by some type of score card by the use of which some score number would be determined and which would indicate the quality of the building and amount of built-in educational equipment. Setting up some such type of scoring system is, however, beyond the scope of the present article.

In the comparisons of costs of Milwaukee senior and junior high schools given herewith, the costs of the site, the grounds development, and the educational equipment (except built-in cabinetwork) are not included. Lockers are included, however, as being generally built into the walls.

In Table I the "Adjusted Total Cost to 1926 Level" includes adjusted net amount of building contracts, derived from Item 1 as listed



LINCOLN JUNIOR-SENIOR HIGH SCHOOL, MILWAUKEE (1928)

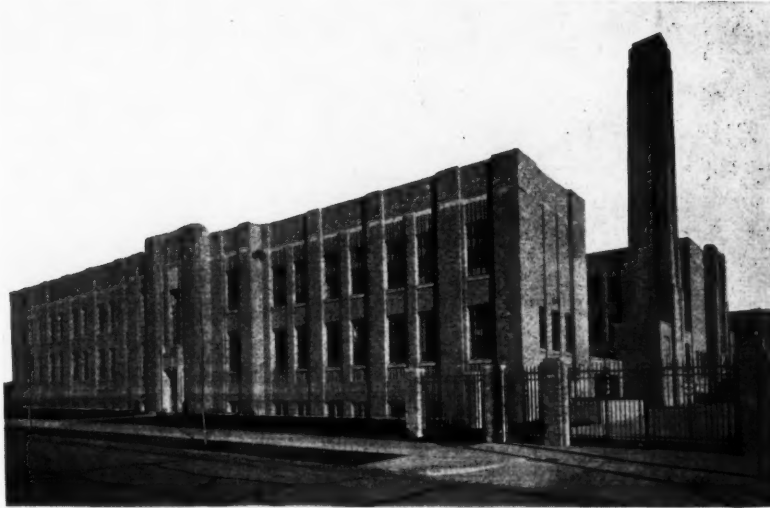


WALKER JUNIOR HIGH SCHOOL, MILWAUKEE (1928)





SOLOMON JUNEAU (JUNIOR-SENIOR) HIGH SCHOOL. MILWAUKEE (1931)



SIDE VIEW, RUFUS KING HIGH SCHOOL (1932)

below, and all other costs charged to construction. These costs are made up in general of the following items:

1. The net amount of building contracts.
2. The architectural and engineering cost.
3. The cost of field superintendence and inspection.
4. Administration office overhead, such as janitor service, heat, light, telephone, etc., and prorated charges, such as salaries not directly charged to specific jobs, sickness, and vacations.
5. Blueprinting, printing, advertising, etc.
6. Miscellaneous costs, such as surveys, photographs, construction work not in contracts, temporary heat during construction and other utilities, etc., paid by the city.

It should be noted, however, that Item 1 is the only item adjusted to the 1926 price level. As the construction contracts are the greater part of the cost of building, it is deemed inadvisable to try to adjust any of the other cost items, however much they may have been affected by changing prices. As a result of this method, the unit costs on buildings constructed during a low-price period should be in fairness increased a few cents, but this has not been done.

#### Factors Which Cause Variations

As the amounts of construction contracts are usually the only cost items available in connection with buildings which may be under consideration, Table II has been prepared, based on construction-contract items alone. Under this item these costs are the "net" amounts after all "extras" and "credits" have been accounted for.

In Milwaukee, school-construction work is let under quite a number of separate contracts and often at different times. In the price-level graph, the time of letting contracts for three of the schools listed in the tables of cost have been indicated. The oldest indicated is Washington High School, the contracts for which were let from the later part of 1913 to near the close of 1916. The graph shows the increase required to adjust the amounts of these contracts to meet the base price level adopted.

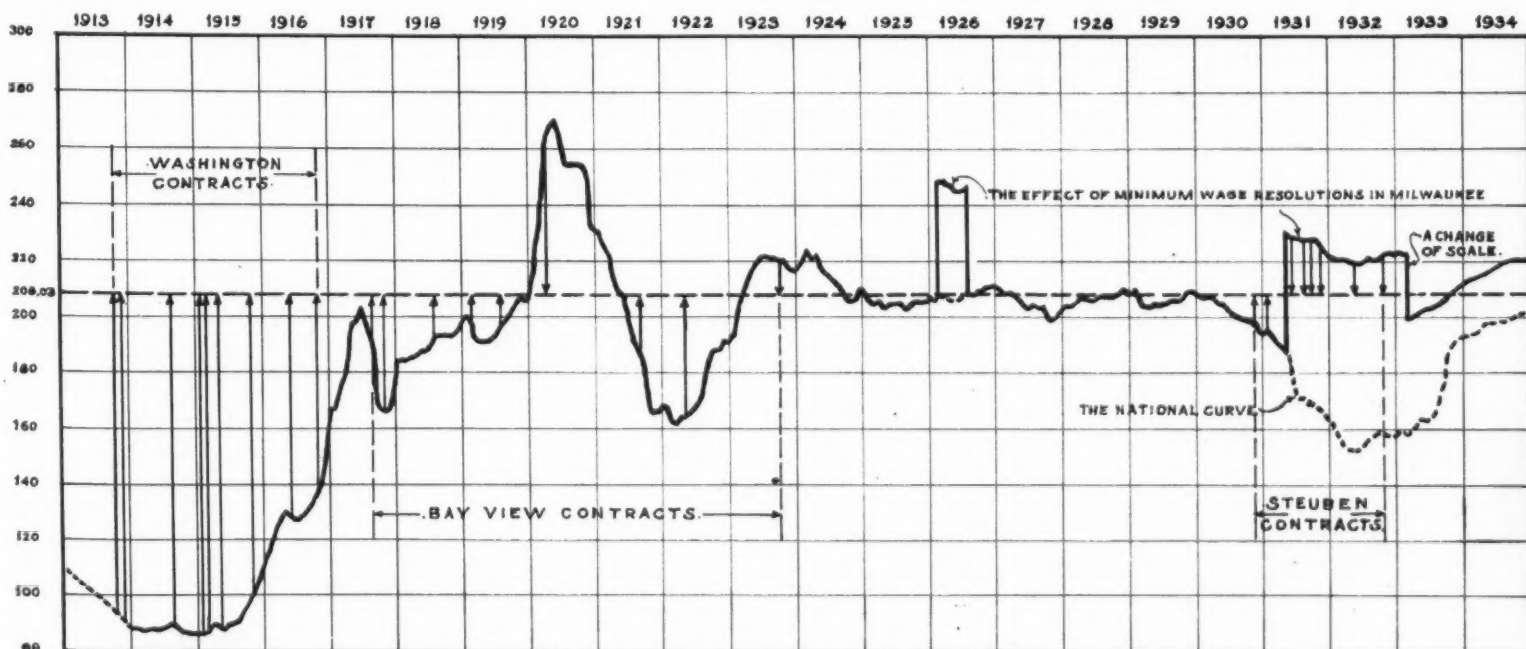
In making up the tables, each contract is adjusted to the basic level individually and the sum of these amounts only included in the tables under the heading "Net Contracts Adjusted to 1926 Level" in Table II. The next group of building contracts shown on the graph are those for Bay View High School,<sup>3</sup> extend-

<sup>3</sup>Bay View High School was started during the World War period and the work progressed intermittently. The work was stopped entirely for a considerable time. One contract only was let at the highest price level, this being a small one.

(Concluded on Page 77)

TABLE III. Steuben Junior High School, Tabulation of Detail Costs  
Showing Correction to 1926 Price Level, ENR Index 208.03

Date	ENR Index	ENR Index with Minimum-Wage Correction	Net Building Contracts	Adjustment Factor	Net Contracts Adjusted to 1926 Level
November 4, 1930	198.54		4,437.00	1.048	4,649.98
January 6, 1931	194.48		192,470.45	1.070	205,943.38
May 5, 1931	189.33		138,071.95	1.099	151,741.07
August 4, 1931	171.38	228.62	293,507.32	.910	267,091.66
September 1, 1931	171.40	228.10	11,181.68	.912	10,197.69
November 3, 1931	169.28	228.10	171,703.85	.912	156,593.91
December 1, 1931	166.23	225.55	19,350.96	.922	17,841.59
May 3, 1932	152.78	210.68	3,938.30	.987	3,887.10
October 4, 1932	159.16	223.00	815.00	.933	760.40
1. Net amount of Building Contracts.....			835,476.51		818,706.78
OTHER CHARGES					
2. Architectural and Engineering Cost.....			32,073.95		
3. Field Superintendent and Inspection.....			7,602.00		
4. Administration overhead and prorated charges, etc.....			10,853.59		
5. Blueprinting, printing, advertising, etc.....			3,152.83		
6. Miscellaneous Charges.....			10,969.32		
			64,651.69		64,651.69
Educational Area, 80,144.....			883,358.47		883,358.47
Cost per Sq. Ft. Ed. Area 1926 Basis.....			80,144 = \$11.02		
Cubic Contents, 3,116,900 Cu. Ft.....			883,358.47 = .2834		
Cost per Cu. Ft. 1926 Basis.....			3,116,900		



GRAPH SHOWING COST OF CONSTRUCTING MILWAUKEE HIGH SCHOOL BUILDINGS.  
Based on Engineering News-Record Cost Index. Correction has been made for Milwaukee-School-Board Minimum Wage.

# How Hempstead "Sold" Its School-Bond Issue

Supt. William A. Gore, Hempstead, N. Y.

The Hempstead school-bond election was "premeditated." In the past the school district had been financially able to support its schools and did so liberally, but recent experiences in other communities caused the school board to proceed with caution. We felt that our taxpayers were not ready to assume what might seem to be an additional burden without a complete understanding of conditions. Our process of explanation lasted two years.

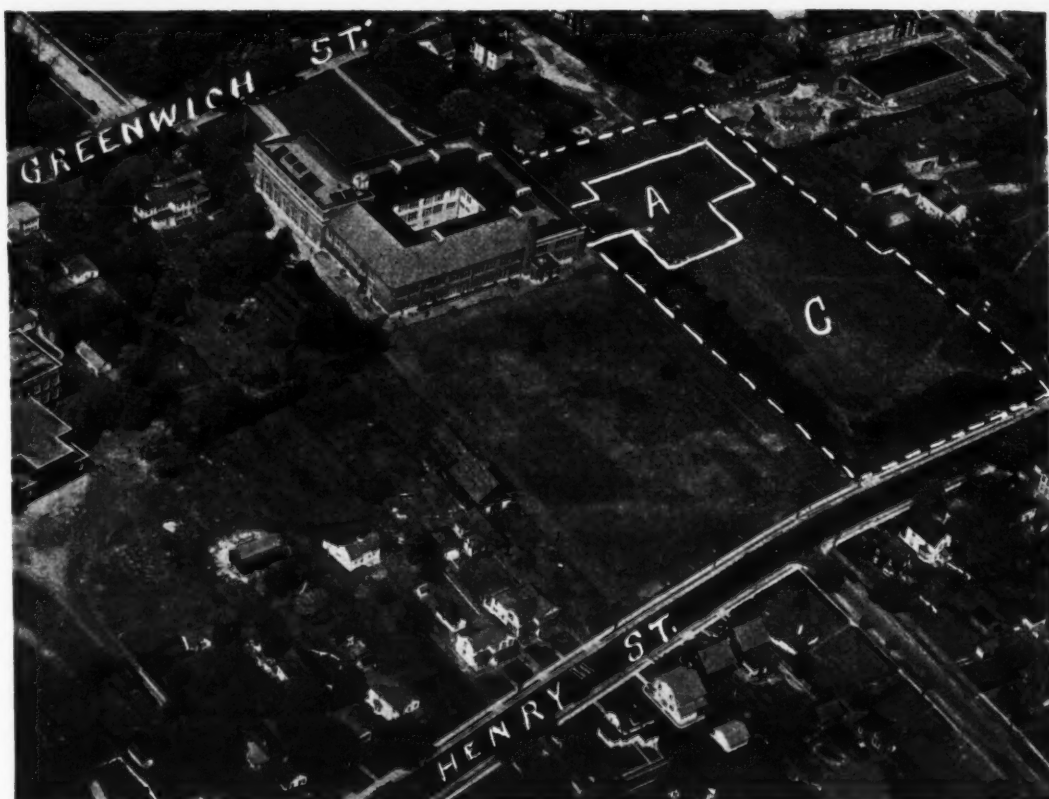
A few years ago, school bonds were proposed by boards of education and voted on with as much speed and as little general concern as a Shakespearean wedding. The usual procedure included a statement in the local papers, set in 5-point type among the notice of sale; a few days of wild comment by the press and the public. And then on election day, some patrons, who found it convenient to do so, added their votes to those of the teachers and janitors to make the decision nearly unanimous. The proceeding, so far as the public was concerned, was of expressed indifference.

The present much-discussed period of reversed or jumbled relationships has turned the gentle process of bond-passing into a huge task. Now, people vote and they have learned how to vote "No." The mortality of bond issues runs extremely high. Prevailing good times, the habit of buying anything one can buy on time, and blind faith in education as white-collar insurance — all these things are of the past. Necessity has done more than the study of geometry to promote logical thinking. Our Q.E.D.'s are not accepted as self-evident facts. The major and minor premises are demanded in full detail before judgment is passed.

## The Setting

The Hempstead High School serves a natural district of more than 20,000 inhabitants; the grades below, serve a legal district of 10,000. More than half of the high-school students are tuition pupils living outside but near the boundary of the legal districts. Ours is a special act district (1863) with boundaries firmly fixed but with other features sufficiently liberal to warrant the continuance of the law under which we operate. The school population within the district has had a slow but steady growth; outside, near the boundary, such growth has been rapid.

The grade schools, with one exception, are



THE HEMPSTEAD HIGH SCHOOL, HEMPSTEAD, NEW YORK

The overcrowded condition of the High School has made it necessary to ask the community to purchase an unoccupied area C and to construct at A a building to provide a study hall, a cafeteria, a gymnasium, shops, art rooms, domestic-science rooms, and commercial classrooms. The property C has been used for some years for play and physical education. The addition will release rooms very much needed for academic studies, and the gymnasium will enable the school board to comply with state requirements.

gems of modern school architecture. The junior high school (grades 7 and 8) is housed in the oldest building. The building is unsuited but is too good to wreck. The senior-high-school building was considered one of the best in the state when erected 14 years ago.

## The Problems

The major problems in the situation were these five: (1) More playgrounds were needed. (2) One new grade school was crowded. (3) The heating plants in the old grade school and the junior-high building were of an ancient type and failed to give sufficient heat. (4) In the old grade school, pupils were occupying two basement rooms, and this school had no gymnasium. (5) The high school built to ac-

commodate 1,000 pupils had an enrollment of more than 2,000.

The work involved in presenting the bond issue fell into three divisions:

- Justification of the request.
- Informing the public.
- Utilizing momentum of the existing social and economic trends or tendencies within the district.

## Justification of the Request

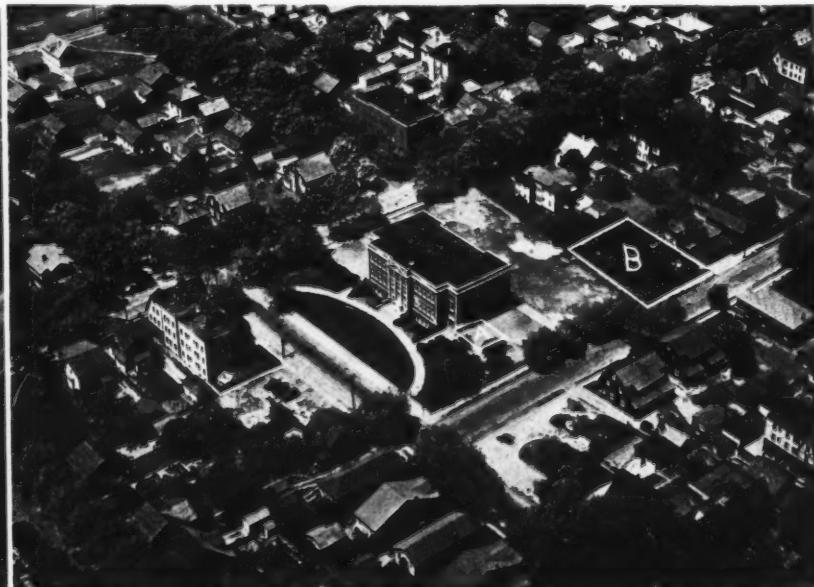
Boards of education and school administrators as well as teachers can ask for a lot of things not needed. A study of available facts will test the soundness of a request.

Data, for the ten years preceding, on growth of school populations, assessed valuation, state



THE FRANKLIN SCHOOL, HEMPSTEAD, NEW YORK

For several years the area F has been used for outdoor play and physical education. It has a disadvantage: the children are compelled to cross a busy highway and that the property may at any time be sold by its owners for other purposes. The airplane view helped visualize to the community the need of closing a little-used blind end of Mercer Street and of acquiring property A for playground purposes.



AIRPLANE VIEWS PROVIDE AN EFFECTIVE MEANS OF STUDYING A SCHOOL SITE WITH RELATION TO ITS SURROUNDINGS

The present picture is that of the Washington School at Hempstead, New York. The picture was taken to visualize for the community and the board of education an addition to the school building at A, and an enlargement of the school grounds at B.





THE JACKSON SCHOOL, HEMPSTEAD, NEW YORK, had an increase in enrollment of 130 pupils within five years' time, and three classrooms are needed to comfortably house the pupils. The space marked A roughly indicates the location of the three additional classrooms which have been voted.

aid, number of nonresident pupils, revenues, per-pupil costs (current and total), and other such features, were collected and predictions made. The results were displayed on cardboard  $2\frac{1}{2}$  by 3 ft. in size. Some of the graphs were made on window shades 4 by 7 ft. These studies made us sure of our ground and later furnished displays for public meetings.

We found that our nonresident pupils in the high school were desirable in several respects and decided to recommend the building of a larger addition. This was difficult to justify to those who advocated keeping the building as it was and excluding all nonresidents. A hypothetical case of no nonresidents in our high school and a new high school for the nonresidents was set up. A comparison showed that our district was saving \$75,000 a year, and the districts sending us pupils were saving an equal amount.

The support of our schools comes from five different sources; only one half comes from this district. To explain this, three hollow square posts, 8 by 8 inches (the tallest one 7 ft. high) were built with heights in proportion to the total income for the last three years.

many meetings outside of school.

2. "School News" edited from time to time in superintendent's office was sent to parents, business offices, and public places.

3. Service clubs took lunches at the high-school cafeteria, visited classwork, and heard the band and orchestra.

4. The press was supplied with news.

5. Two open-house nights were held at the high school—one a "School Review" made up of sketches of classwork given on stage, one a shortened program of actual classroom procedures.

6. Teachers were informed on the issue and each was to explain the issue to five voters.

7. Other meetings, such as the monthly P.-T.A. meetings, numerous milk-fund-benefit card parties, art exhibits at all schools, music week, school plays, and operettas gave additional opportunities to acquaint patrons with school needs.

#### The Momentum of Local Trends

Full use was made of the momentum of the social and economic trends or tendencies within the district.

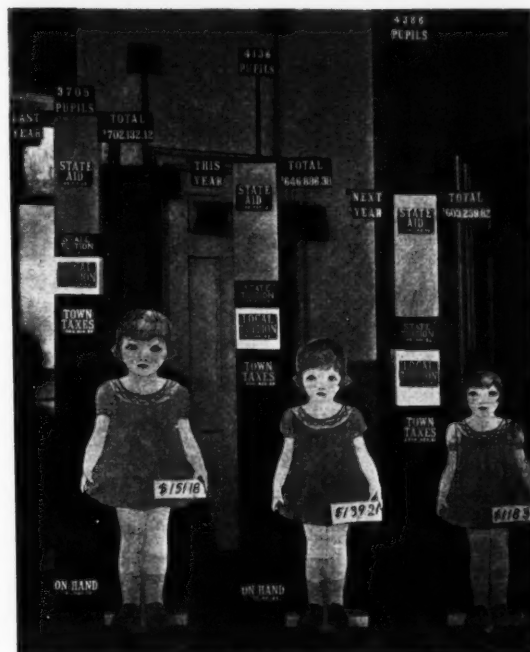
These posts were cut into segments representing the different sources and painted in different colors. These made an attractive stage setting.

To represent the decline in per-pupil school costs, cut-out pictures of a school girl were made on beaver board. A post-card projector made it easy to get the correct proportions.

#### Informing the Public

Our program for informing parents, taxpayers, and the public included seven items:

1. Displaying of charts and graphs at



THE LIFE-LIKE FIGURES AND THE COLORED COLUMNS as above were used extensively by the Hempstead school authorities in visualizing the growth and the new needs of the school system for enlarged housing facilities.

Aerial photographs were made of the buildings to be improved and the ground to be purchased. These made a special appeal to those whose homes were included in the pictures. Also, they brought out safety problems more vividly than any words could have done.

When it was proposed to send the seventh grade back to the grade schools and use half of the junior-high-school building for senior-high-school work, the resulting protests advertised the crowded condition of the high school very effectively.

The best picture, for our purpose, in the "School News" was one of the high-school pupils. Under the picture was printed "It has been estimated that the parents of these children spend over One Million Dollars annually in Hempstead." Some of our merchants made the estimate. Our district is one of the chief shopping districts of the island.

And we didn't forget to use our 100-piece school band.

## A Century of Progress in Schoolhouse Construction

Forest R. Noffsinger, Assistant, Bureau of Co-operative Research, Indiana University

(CONTINUED FROM DECEMBER)

One of the first and most elaborate schools constructed in this country was the Grammar School for Girls, No. 47, in New York City, erected in 1856.<sup>39</sup> The building was in the shape of the letter T with the top of the T facing the street. The main entrance to the building was in the center of the front and led into the basement at grade level. In the central part of the building a grand staircase led to the first floor. In each of the inside corners of the T were located stair towers with outside entrances on the basement level. The lower part of the T was occupied with a large playroom on the basement floor and a strikingly modern auditorium on the first floor. On each of the other three sides of the central hall were arranged two classrooms, making six on each floor. Toilets were located in the basement under the stage and at the extreme rear of the building.

Another rather common type of building for the period, planned in the shape of a cross, was the Union School House, erected in 1857 at Ypsilanti, Michigan.<sup>40</sup> On the first floor, two corridors ran from the front to the rear with entrances at the interior corners of the cross and with a large general hall occupying the entire space between them. Two rooms with an entrance between them occupied each end of the building. On the second and third floors, the two corridors containing the stairs extended from the front to the center of the building where they

joined a transverse corridor extending from one end of the building to the other with classrooms grouped on either side.

The transition from the monitorial system to the graded system of instruction with building arrangements modified to suit the change was well under way by 1860. Few school buildings were being erected which did not follow fundamentally the general plan of the Quincy School. Outstanding variations of the Quincy plan were represented by the Haven School in Chicago, erected in 1861;<sup>41</sup> the Denman School in San Francisco, erected in 1864;<sup>42</sup> the Prescott Grammar School in Boston, erected in 1866;<sup>43</sup> and the Skinner School in New Haven, Connecticut, erected in 1867.<sup>44</sup>

The Girls High School of Boston, built in 1870,<sup>45</sup> represented a plan slightly different from others of the period and rather modern in character. The building was rectangular in shape with the long side of the rectangle toward the street. A row of six classrooms with a large entrance vestibule in the middle formed the front part of the building. Through the center of the long way of the building ran the main cor-

<sup>39</sup>"Plans of Haven School Building, Chicago, Ill." *Barnard's Journal of Education*, 13:611-15, September, 1863.

<sup>40</sup>"Denman School, San Francisco, Calif." *Barnard's Journal of Education*, 24:566-7, October 15, 1873.

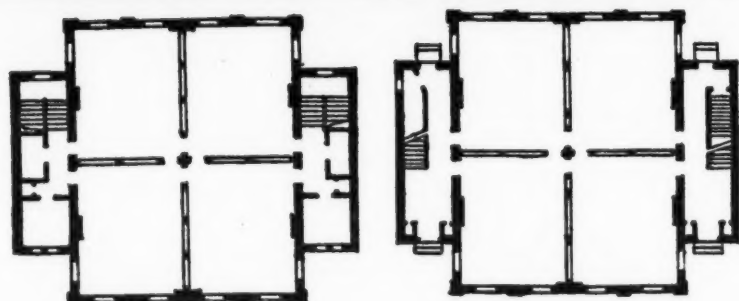
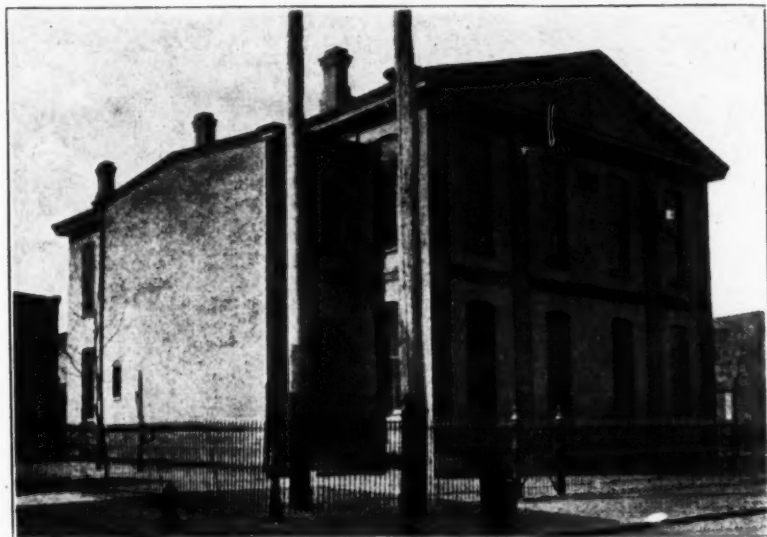
<sup>41</sup>"Plans of Prescott Grammar School-House, Boston," *Barnard's Journal of Education*, 16:710-19, December, 1866.

<sup>42</sup>"Skinner School, New Haven, Conn.," *Barnard's Journal of Education*, 24:556-9, October 15, 1873.

<sup>43</sup>"Girls High School, Boston," *Barnard's Journal of Education*, 19:794-6, December, 1870.

<sup>39</sup>"Grammar School for Girls," *Barnard's Journal of Education*, 1:410-11, March, 1856.

<sup>40</sup>"Plans and Description of Union School House, Ypsilanti, Michigan," *Barnard's Journal of Education*, 4:781-4, March, 1858.



SECOND FLOOR PLAN

FIRST FLOOR PLAN

THE JAMES POLLOCK SCHOOL, PHILADELPHIA, PENNSYLVANIA  
This building was erected in 1854-55 at a cost of \$9,187. It is typical of the 4-room school buildings erected in Philadelphia in that period. The original building contained four rooms, and four additional rooms were constructed in 1868 at a cost of \$8,500. The original building was heated by stoves and a hot-air system was later installed. The photograph was taken in 1914 when the building was still in use.

ridor which extended to the end of the building on the first floor, but only to the last room at each end on the second floor. Along the back side of the corridor were arranged six rooms and two corridors containing stairways.

#### Early Outside Corridors

The earliest instance of outside corridors was found in the St. Philip School, built at New Orleans in 1873.<sup>46</sup> In this building a series of three rooms had, on each side, an outdoor corridor, and across each end of this arrangement were placed two rooms with entrances leading to the outdoor corridors.

The Rogers School of Newport, Rhode Island, erected in 1875,<sup>47</sup> was the first of its type. The corridor of this plan formed an L, two rooms filled in the interior corner of the L and four rooms were grouped about the outside of the L, causing the building plan to have the shape of a rectangle.

A small one-story kindergarten building, the Clinton Branch at St. Louis, built in 1876,<sup>48</sup> added a new type of building to those already described, the U-shaped building. The top of the U faced the street, each of the two projections consisting of a single room with an entrance at the rear inside corner. Connecting these two entrances, and parallel with the street, ran a long corridor, and back of the corridor was placed one large room forming the bottom of the U. Entrances to the rear were also provided at the ends of the corridor. This building represents the first plan to have a corridor on the outside wall of the structure.

A larger building of the U type was constructed in the same year at Hartford, Connecticut.<sup>49</sup> In this case the bottom of the U faced the street with a pair of rooms on either side of the central corridor. Connected to the rear corners of this unit were two two-room units with a corridor extending along the inside.

By far the most outstanding school building erected in this country before the beginning of the twentieth century was erected in Boston in 1881<sup>50</sup> — the English and Latin High School for Boys. This building was a copy of the *Akademisches Gymnasium* in Vienna and contained 56 rooms. Philbrick, in describing the building, listed 19 outstanding characteristics, among which were the following: gymnasium, water closets on each floor, chemistry facilities in an annex, fireproofing on such a large scale as had never before been attempted in this country, and iron staircases with rubber-padded steps. The rooms were placed

around a large interior court divided in the middle by a connecting annex. At no point was the structure "wider than the width of the corridor added." So impressed was Philbrick with the advantages of the court plan or idea that he stated, "So important do I consider this idea in schoolhouse building that I doubt whether there can be a first class schoolhouse of any considerable size in which it is not applied." Lincoln<sup>51</sup> and Hibberd<sup>52</sup> added their approval of the court idea, but no other buildings of this type could be discovered in the literature in the period previous to 1900, although several models of the type were presented.

One of the simplest and best illustrations of the H-shaped building was represented by the Fowler School erected in Cleveland in 1888.<sup>53</sup> At the ends of the building were two rooms with the short sides of the rooms facing the front. Next to each of these two rooms were two other rooms with their long side to the front and with an entrance corridor between them. Through the center of the building ran a transverse corridor the length of the building. Back of this corridor the rooms were arranged in the same manner as in front, except that a small room occupied the space corresponding to the entrance corridor. The Manual Training High School of Kansas City, Missouri, erected in 1896,<sup>54</sup> resembled an expansion of the Fowler School. There were seven rooms across the front and the same number across the back, but the entrance corridor extended through the building to the rear instead of terminating with the transverse corridor. The 1897 report of the State Superintendent of New York<sup>55</sup> presented the plans for the Auburn, New York, building. The building was placed in the corner of a lot having an angle of about 120 degrees. The Fowler plan was bent back on both sides of the main entrance to conform to the sides of the two streets. The middle room at the rear was crowded into a small triangular shape and was used for a cloak room. This building was the first found in the literature which was adapted to the peculiar shape of the site.

#### Placement of Assembly Rooms

The placement of the assembly room or auditorium on the first floor of school buildings instead of above regular classrooms on the top floor caused the development of new types of building plans. The Middletown, New York, high-school building<sup>56</sup> was one of the first of this nature to be developed. The assembly hall was placed back of the transverse corridor. On each side of the building was a row of five classrooms, three of which opened into the assembly room. Toilets were placed over the entrance corridors and a second assembly hall, lighted partially by skylights, was placed over the one on the first floor. The front of the building had a third floor in which were placed the science and art rooms and a library. The Utica Free Academy<sup>57</sup> had a plan wherein the assembly hall was completely surrounded by corridors on the outside of which a row of classrooms extended entirely around the building.

With the adoption of unilateral lighting in schoolrooms, the increase in the size of school buildings, the introduction of new types of classrooms, the need for adequate physical-education facilities, and the increasing popularity of cafeterias, many changes in the simple plans of 1900 have developed. Today we find new buildings planned to meet the specific needs of particular communities and therefore so varied in type and plan that each building can be designated as a type.

<sup>46</sup>Lincoln, D. F., "School Architecture," *Forty-Eighth Annual Report of the Board of Education, 1883-1884*, pp. 263-4. Wright and Potter Printing Co., Boston, 1885.

<sup>47</sup>Hibberd, James F., *op. cit.*, pp. 229, 231.

<sup>48</sup>Palliser, Palliser and Co., *Common Sense School Architecture*, p. 19. J. S. Ogilvie, New York, 1889.

<sup>49</sup>State of Missouri, "The Schoolhouse," *Forty-Seventh Report of the Public Schools of the State of Missouri for the School Year Ending June 30, 1896*, pp. 17-25. Tribune Printing Co., Jefferson City, 1897.

<sup>50</sup>State of New York, *Recent School Architecture, Selected Reprints from the Annual Reports of Charles R. Skinner, State Superintendent of Public Instruction, New York, Wynkoop Hallenbeck Crawford Co., New York, 1897*, 425 pp.

<sup>51</sup>*Ibid.*

<sup>52</sup>*Ibid.*

(To be continued)



AUDITORIUM AND GYMNASIUM, RYE CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE

<sup>46</sup>"Plan of St. Philip School, New Orleans, La.," *Barnard's Journal of Education*, 24:568, October 15, 1873.

<sup>47</sup>"Rogers High School, New Port, R. I.," *New England Journal of Education*, 1:5, January 2, 1875.

<sup>48</sup>City of St. Louis, *Twenty-Second Annual Report of the Board of Directors of the St. Louis Public Schools for the Year Ending August 1, 1876*, p. 24. Slawson, St. Louis, 1877.

<sup>49</sup>Hodgins, J. George, *The Schoolhouse: Its Architecture*, pp. 194-5. Copp, Clark and Co., Toronto, Ontario, Canada.

<sup>50</sup>"The English High and Latin Schools, Boston, Mass.," *Journal of Education*, 13:134-5, February 24, 1881.

Philbrick, J. D., *op. cit.*, pp. 166-8.



# Air Conditioning and the Chimney Action of School Buildings

John M. Robb, Peoria, Illinois

There can be no effective control of any air conditioning in either of its two phases, in any building, nor of its warming cost, nor of its cleaning cost, nor of its maintenance cost, until its chimney action has first been brought under adequate control. The two phases of air conditioning are its comfort or thermodynamic phase, and its health or sanitary phase.

A small force continuously applied moves a great mass. This expresses a principle that importantly influences many items in all air conditioning. In none of these has it yet received competent analysis. Its ceaseless operation in the chimney effect of every building is only one of these items.

This seeks to elevate the viewpoint of a very vital process to a height above the ruts of custom in all current air-conditioning practice, that no authority has yet reached.

## What is Air Conditioning?

Air conditioning is only the effort to control indoor atmospheres to continuously maintain that quality considered most desirable for comfort and health, or for the insurance of certain qualities of products, equipment, or service, all in accordance with definite arbitrary standards. It is obvious that such standards will change as knowledge grows.

The proof of air conditioning lies only where accurate records are continuously kept to show losses from failure to maintain the desired control.

Whenever such records exist, as in the manufacture of silk textiles, the maintenance of costly electrical equipment that must be cooled by air flow, or the operation of automatic switching telephone exchanges, the failure of all present air-conditioning practice to afford the essential control, is adequately demonstrated.

The Synthetic Chart of the American Society of Heating and Ventilating Engineers lists seven known elements that air conditioning must control:

1. Temperature.
2. Relative humidity.
3. Motion of the air.
4. Dust.
5. Bacteria.
6. Odors. (Eliminate indoor dust and bacteria and odors will also be eliminated.)
7. Distribution. (Proper distribution will, in the absence of dust, stop odors.)

The first three items constitute the comfort phase of air conditioning. This phase is the important thermodynamic phase that the engineer has been trained so competently to consider, with one exception. This exception is the direction of flow. Whenever the influence of the chimney action of any building is competently investigated, it will be recognized that no present air conditioning gives effective control of the direction of air flow, excepting within the conduits that deliver the air.

The last four items concern the sanitary phase of all air conditioning. This phase is universally recognized in theory, but it is just as universally ignored in all present practice to at least the same extent as early water supply when contaminated sources were tapped.

## Three Basic Questions

1. What is the chimney action of a building?
2. What losses are made by failure to con-

**EDITOR'S NOTE**—This important paper discusses the fundamental problem in all air-conditioning of school buildings. Without a clear understanding of the basic problem of the chimney action of buildings, there can be no scientific solution of air-conditioning problems.

trol this chimney action?

3. How can the chimney action of a building be controlled?

1. The chimney action of a building is the force of gravity continuously operating to make air flow through it so long as any difference in temperature exists between the indoor and the out-of-door atmosphere.

Roughly stated, heat expands the volume of air about one per cent for each five degrees rise in temperature. So, the same volume of warmer air weighs less than an equal volume of cooler air. The effect of this difference in weight makes every building a chimney. Cold, heavy air, with its load of dirt constantly leaks inwards in any building, below the neutral zone. A corresponding volume of warmed air constantly flows out through the venting provision of the building, and through leaks in its parts above the neutral horizontal zone. The so-called neutral zone of a building is an imaginary horizontal line that separates the inward and the outward flow. It is to the building something as the equator is to the earth. Although invisible, the neutral zone is a very definite dividing line. The warmed air that leaks outwards above the neutral zone, leaves its load of dirt within the building. To this extent, this air is better than the out-of-door air.

It is obvious that the taller a building is, the greater is its chimney action, with corresponding greater necessity to control it. Anything that increases the difference in temperature between indoors and out of doors also increases the chimney action.

## Some Necessary Definitions

Infiltration in air conditioning means air that leaks into a building from any source. Exfiltration is the air that leaks outwards as distinguished from the air that escapes by the venting provision. *If no air could leak outwards, none could leak inwards.* It is obvious that the venting provision of the building increases its chimney action as the outside temperature falls. This fact has so escaped competent analysis as to impair or to defeat air-conditioning effort to control the *direction of the flow of air* in most buildings, in cold weather.

As desirable as the flow of air from the venting provision of a building may be in certain periods of operation, this flow should be stopped entirely during the periods when the building is not in use for its regular work.

Infiltration is almost universally regarded as an effect of wind pressures. This item of infiltration is a very important influence in all air-conditioning considerations. But winds blow only in one direction during any given period. In most localities there is little or no wind during periods of coldest weather.

The chimney action of a building, however, is a force constantly in operation so long as any difference in temperature exists between indoors and out of doors. Its intensity increases as the outside temperature drops.

The object of all air conditioning for comfort, is warm feet and cool heads. The chimney action of a building constantly operates to defeat this objective. Since warm feet can be assured in cold weather, only by maintaining a constant flow of air across the floor from the warm interior of the building toward its cold exterior walls, the use of direct radiation on the outside walls is a makeshift attempt to control this direction of air flow, that often intensifies the evil. The cold, heavy air that leaks inwards, or that results from the cooling effect of the heat losses, flows inwards along the floor toward the warm interior, *unless mechanically opposed.*

Adding more heat to remedy the resulting evil establishes a vicious cycle of operation. There comes a point where additional heat has little or no effect toward raising floor temperatures. This condition is *stratification*, perhaps the greatest evil in air conditioning for comfort. Stratification is in any building something of what the Gulf Stream is to the Atlantic Ocean. Stratification is the consequence of misguided effort to control the chimney action of the building; the cause of stratification is the failure to adequately control this chimney action.

## What Losses are Made by the Failure to Control Chimney Action of Any Building?

2. These losses are in five classes:

A. The losses made by excessive fuel costs due to the excessive differences in temperature between floors and ceiling that uncontrolled air flow always makes.

B. Excessive cleaning costs made by atmospheric dirt dragged indoors by uncontrolled air flow.

C. Excessive maintenance costs of building, furnishings, and equipment made by this atmospheric dirt.

D. Losses made by discomfort caused by excessive differences in temperatures between floors and ceilings, and excessive dust. There is no authority yet able to tell whether a so-called *stuffy* atmosphere results from too much heat, too much *dust*, or too little outside air.

E. Losses made by impaired health as the result of depleted indoor air quality from atmospheric dirt dragged indoors by uncontrolled air flow, is perhaps the most important item of the operation of a small force continuously applied. This class is the most important class of losses and the least understood.

When a problem can be clearly pictured its solution has begun. But to attempt to solve any problem without such a clear picture of its whole nature and extent, is wasted time and effort. Since all material problems involve a transformation of matter, they resolve into three prime elements of weight or mass, to be moved over a given distance, within a definite time. Consequently the true engineering solution of any problem rests on answers to three fundamental questions: "What?" "Where?" "When?"

To attempt to decide *how* to solve any material problem until accurate answers are obtained to these three fundamental questions, is a failure to put first things first. The result of such failure is inevitable and natural confusion. Symptoms instead of causes are treated.



Temporary relief instead of permanent benefit follows. So in dealing with an invisible operation such as the chimney action of a building, it is most important to begin with a clear mental picture.

#### A Parallel Situation

Swimming pools are now in such general use, and sanitary engineering in water supply has so progressed, that the requirements of both comfortable and *sanitary* swimming-pool operation are fairly well understood. It is now generally accepted that if the pool water be not kept fit to drink, the swimming pool is not fit to use. So if any building be pictured as a swimming pool with porous walls built in ground filled with surface water at greater pressures than the pool water, so that the ground water constantly leaked inwards, a better picture of the chimney action of any building will be made. Further consider that the leakage of such a pool carried great volumes of harmless invisible silt, but that this silt had an irresistible affinity for the perspiration and respiration products of the bathers, so that within the pool, this silt carried much organic matter with accompanying bacteria.

It would now be obvious that in such a swimming pool, the cold leakage would seriously affect the comfortable temperature of the pool water, while the organic matter absorbed by the silt would make a very serious sanitary situation. This is a true picture of what the uncontrolled chimney action of any building does to defeat any other control of any atmospheric condition within it. There is such a thing as atmospheric filth indoors. Although invisible, it is as definite a human waste as the visible wastes that make the demand for modern plumbing. When indoor dust is viewed as air sewage its menace becomes more obvious.

#### How Can the Chimney Action of a Building be Controlled?

3. There are six definite divisions of the effort required to control the chimney action of any building. But the most important requirement is an attitude of mind in the building administrators that recognizes the nature of the problem, with their responsibility to organize the required routine attention and adequate supervision to maintain this routine. Responsibility for the maintenance of the routine must be fixed upon some one individual. Control of the human nature involved in the required routine is the most important item of control.

The six divisions are:

- I. The heating plant chimney.
- II. The vent outlets of the building.
- III. The top floor ceiling and roof space.
- IV. The basement section of the building.
- V. The windows and outside doors.
- VI. The outside walls.

I. So much trouble has been caused by inadequate air supply for combustion in heat generators, that the remedy too often defeats control of the chimney action of the building in a very important detail. The draft hoods of oil and gas burners are especial offenders in this detail. When the heat generator is located within the building, its respective space must be segregated from the building space so that its chimney action cannot influence the atmospheric pressure within the building. Understanding of this requirement dictates an independent conduit of adequate area to supply outside air to the heat generator for combustion, with an adequately controlled bypass to the chimney draft controller. The chimney and the air supply for combustion must be treated so that the chimney cannot influence the atmospheric pressure within the building.

#### Vent Losses

II. *Vent Outlets.* Two classes of vent outlets are usually provided for every building.

One serves the roof space to prevent overheating from sun effect. The other serves the building spaces. There are also two classes of the second type. One serves toilets, kitchens, and other spaces in which smoke or odors are made. It is equally important that both classes be provided with tight-fitting and accessible dampers.

*If no air can leak out of a building none can leak inward.* The uncontrollable leakage from the upper part of any building is so great in the coldest weather, that with the tightest fitting dampers in *all* vents, excessive exfiltration will occur. In some states, dampers in vent flues are prohibited for public buildings by law. This is only one small misunderstanding from the failure to put first things first in all present air conditioning.

A thorough understanding of the chimney action of any building makes the advantages of corridor venting so obvious that the traffic passages of any building will always be utilized for air flow, with corridor venting, when this understanding becomes general. At least two states have already legalized corridor venting for school buildings. In all venting provision in any building it is particularly important to prevent internal air circulation between floors by stair wells, elevator shafts, pipe shafts, etc., during idle periods.

III. *Top-Floor Ceilings.* It is very important to treat all top-floor ceilings so as to stop all air flow through them. Steel ceilings require especial attention. The effect must be the equivalent of that of a thick eider-down quilt on a bed. Heat-loss insulation of top-floor ceilings is imperative. But in estimates of the value of such insulation, the quality of the workmanship in its application is far more important than any laboratory-test data or the comparative worth of the several insulation materials.

The failure to draw proper distinction between the value of laboratory-test data, and experimental data from field operation, is one very important item in the failure to put first things first in all air conditioning. This distinction is identical to that between a food analysis and a recipe to cook the same food. Laboratory data from true research is exceedingly valuable in its proper place. It is worth all of its enormous cost. But there is no substitute for common sense. And when research data is used without common sense the result is very often equivalent to what occurs when a boy gets a high-powered gun. When buyers use more common sense in estimating values of building insulation, much bunkum will disappear from misguided selling effort.

#### Basement and Window Infiltration

IV. *The Basement Section of the Building.* Cold air being so much denser and heavier than warmed air, it is very important to make the basement sections of any building as nearly bottle-tight as is possible. This requirement applies particularly to calking windows and outside door frames, storm sash, and storm doors, metal weatherstrips, etc. The atmospheric dirt enters any building in the greatest quantities in its lowest portions. This consideration alone is enough warrant for the specification to make the basement section of every building as nearly bottle-tight as may be.

Certain buildings have no basement, so far as working space is concerned. In such buildings there is frequently provision for ample air flow beneath ground floors. It is important to stop this air flow in cold weather.

V. *All Window and Outside Doors.* Often the protection of outside wall openings is regarded as storm protection. Then the protection is omitted for the openings in sheltered walls. For the adequate control of the chimney action of any building it is obvious that all openings in outside walls must be protected against air flow, by calking the frames with

permanently resilient material, metal weatherstrips, storm sash, etc.

In the estimates of the value of such protection, the quality of the workmanship in its application is far more important than any other consideration. Ventilating sash too often ventilate excessively when no air flow is desirable.

When all the items previously discussed get adequate consideration, and particularly if the basement has been made bottle-tight with adequate control of venting provision, the omission of window protection will not too much effect the control of the chimney action of the building. This consideration particularly applies when the mechanical air-supply equipment can be operated to make its air input leak outwards in coldest weather. A better understanding of the fallacy of most air-recirculation recommendations occurs when all this is understood.

#### Wall Leakages

VI. *All Outside Walls.* Most wall construction is as porous to air flow as a sponge. This item is of least concern when all others have had competent attention. But painting the outside walls of most types with colorless linseed oil is worth its cost. Air spaces in outside walls are more frequently an aggravation than a benefit. The only air spaces of value for insulation are those that are the equivalent of the air spaces in a thick wool or similar quilt.

In certain Atlantic coast hotels, during driving storms from the sea, the most costly wall construction leaked as much water as the cheapest, until painted as above. The tightest wall construction found in more than twenty years of international school-building-inspection service, was in certain Pacific coast school buildings. Here local cost considerations dictated poured-concrete walls. But driving rains in most winter weather compelled unusual attention to imperviousness. The concrete was heavily coated with asphalt and faced with brick. The next tightest wall construction was found in certain eastern buildings where the inner surface of the exterior walls had been sprayed with hot asphalt.

Air will leak where water will not. The recognized difficulty to make basement walls proof against ground water is only a mild indication of the difficulty to make outside walls bottle-tight.

*In General.* The test of adequate control of the chimney action of any building, is to shut off heat on a zero day, with 70 deg. F. inside, and note the temperature drop in 24 hours. When a sufficient fund of field data from such tests warrants agreement as to the permissible temperature drop, and this requirement is written into specifications for the purchase of building insulation, a much better understanding of mutual responsibilities for success in air conditioning will result. The time has come for air-conditioning contractors to protect themselves by an organized demand for such a specification. However, the effort to bring about this highly desirable understanding is about the same as the effort to make the demand for modern plumbing, at a time when wells and cesspools were built on the same town lots, the common drinking cup and the roller towel were tolerated in public places, and architects wasted much of their attention in effort to decoratively conceal plumbing fixtures.

#### An Example

As wonderful as are the accomplishments of the physician in preventive medicine, they do not excel what the plumber has done to sell modern plumbing with its unlimited supply of pure hot and cold water, and its quick and complete elimination of the visible human wastes. For about fifty years the air-conditioning engineer has been begging the physician to

(Concluded on Page 77)





THE ALBERT G. LANE  
TECHNICAL HIGH SCHOOL  
WESTERN AVE. AND ADDISON ST. - BOARD OF EDUCATION, CHICAGO, ILL.  
PAUL GERHARDT, ARCHITECT

ALBERT G. LANE TECHNICAL HIGH SCHOOL, CHICAGO, ILLINOIS  
Designed by Paul Gerhardt, Architect, Chicago, Illinois, and erected under the supervision of John C. Christensen, Inc., Architects, River Forest, Illinois.

## New Lane Technical High School, Chicago, Illinois

*Thomas J. Higgins, Assistant Director, Bureau of Research and Building Survey*



DR. WILLIAM J. BOGAN,  
Superintendent of City Schools, Chicago, Illinois,  
was the first principal of the Lane Technical High School and  
was the guiding spirit which led to the planning and erection of  
the magnificent new building.

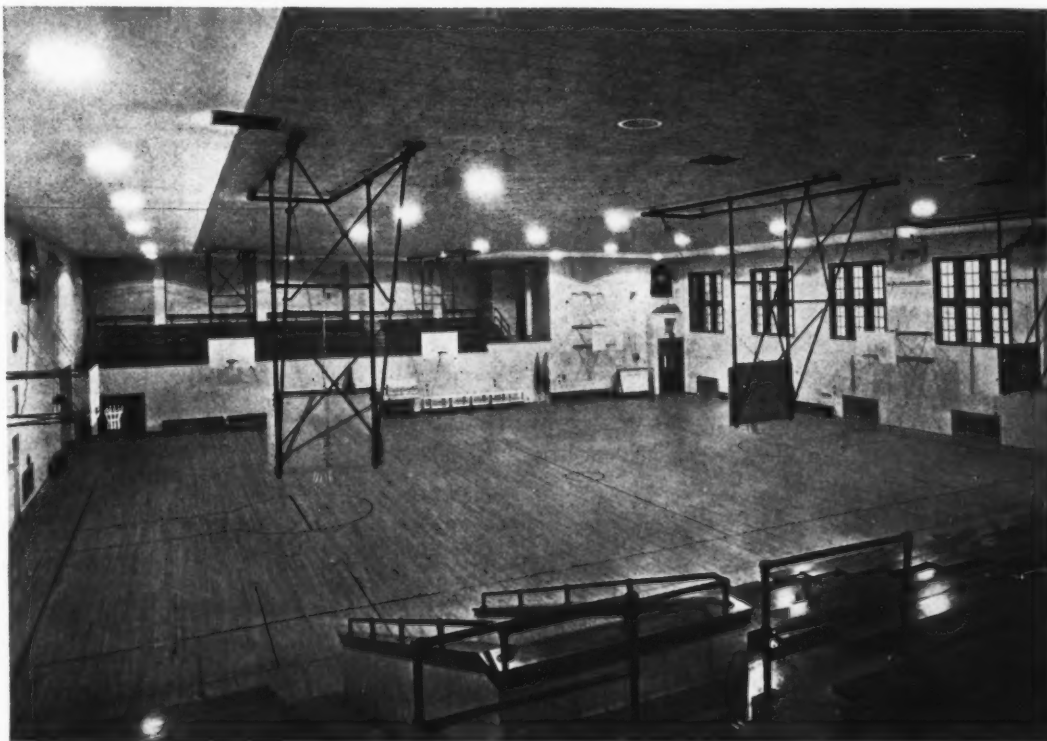
At the opening of this century manual training was looked upon by educators as a solution to many of the problems confronting youth. The rapid growth of our cities with the resulting decrease in opportunities for boys to aid in the many manual tasks on farms and in rural homes, the high value a machine age placed upon the services of skilled workmen, and the natural urge of live, healthy American boys to do things, all added force to the arguments for manual training. Chicago was one of the first to introduce this modern educational idea into its high-school system.

In September, 1908, the Lane Technical High School was opened on the near north side, with an enrollment of over 1,200 pupils. William J. Bogan, now our superintendent of schools, was named as principal. The enrollment grew by leaps and bounds. The students had hardly become accustomed to the new building when talk of additions on the old site and a new building to the north became common.

Meanwhile, educational theory was keeping pace with the changing world. No longer was it thought sufficient to offer one course to which all boys must adapt themselves. A newer educational philosophy advocated the fitting of the school to the boy. With this thought came a diversification of courses and subjects. Though the Lane building was not originally planned nor equipped to allow such diversification, many new courses were added within those first few years to meet the individual needs of the students. Out of this theory and the wide demand for this type of education and the persistent efforts of Mr. Bogan came the new Lane. By 1930, the school had reached an enrollment of over 7,000 pupils, and had filled sixty portable rooms and five elementary buildings in the immediate neighborhood.

In 1925, with the aid of spot maps of pupil residences and social and industrial surveys, a 31-acre site for the new Lane was selected on the north side of Chicago. After the site was definitely determined upon, work was started on sketch plans for the new school, incorporating the many suggestions Mr. Bogan and the faculty of the Lane school had accumulated over a period of sixteen years. The writer was fortunate in having the opportunity of working with Mr. Bogan for over a year in the preparation of the sketch plans. Mr. Bogan's experience in technical-school work has produced the finest technical high school in the world.

Construction work on the new Lane was begun in 1930. Completion was delayed until September, 1934.



LARGE GYMNASIUM, LANE TECHNICAL HIGH SCHOOL, CHICAGO, ILLINOIS

This room has been designed for carrying on the general physical-education program. It is located in a separate wing of the building and has two spectators' balconies large enough to seat 1500 persons. It will be used for exhibitions and inter-scholastic games. The floor area is 84 by 99 feet. The area under the balcony seats is occupied by team rooms, locker rooms, etc. The ceiling is finished with sound-absorbing materials, the walls are glazed brick, and the floor is hard maple.

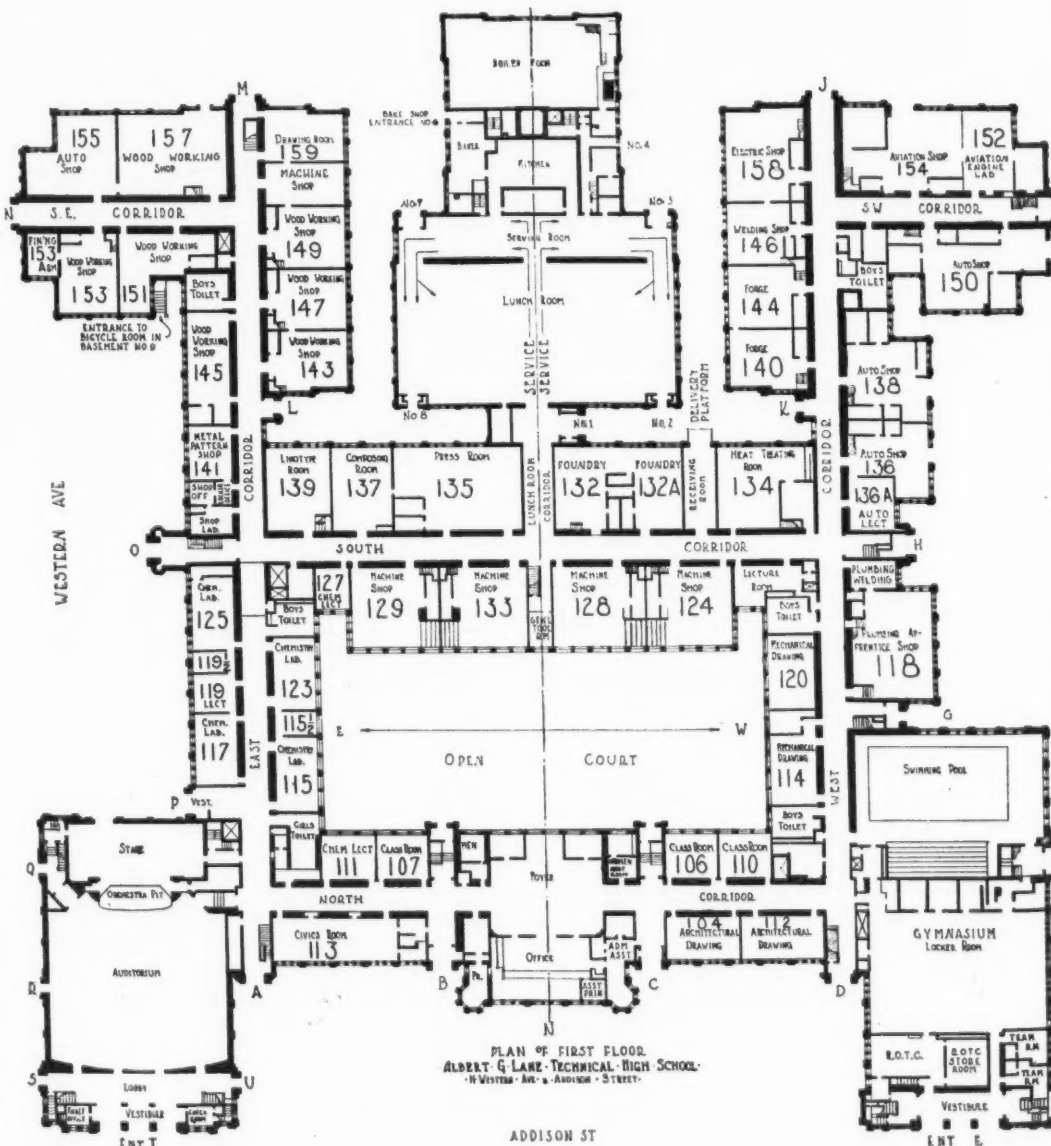


LIBRARY, LANE TECHNICAL HIGH SCHOOL, CHICAGO, ILLINOIS  
One half of the library. Alcoves are provided on balcony for special study groups in various subjects.

With the opening of the new school, under the principalship of Charles E. Lang, the courses offered to the north-side boys of Chicago have been expanded to meet modern industrial and civic demands, and to embody the education best suited to the individual needs and capacities of the pupils. Instruction in the following subjects will be offered:

- |                        |                          |
|------------------------|--------------------------|
| Auto-mechanics         | English literature       |
| Aviation               | English composition      |
| Machine shop           | Library training and use |
| Foundry                | Public speaking          |
| Forge                  | Dramatics                |
| Metal patternmaking    | French                   |
| Metallurgy             | Spanish                  |
| Heat treating          | Polish                   |
| Welding                | German                   |
| Electrical theory      | Latin                    |
| Electrical practice    | History                  |
| Electric communication | Civics                   |
| Radio                  | Economics                |
| Algebra                | Commercial art           |
| Geometry               | Freehand drawing         |
| Trigonometry           | General science          |
| Advanced algebra       | Biology                  |

First floor plan, Lane Technical High School, Chicago, Illinois. The building is symmetrical about the north and south center line with gymnasium and auditorium wings on each end. Immediately south of the north section of the building there is an open court 250 feet long and 100 feet wide which is to be planted as a formal garden and fitted with seats for study and rest. Bounding this court on the southerly side is the central portion of the building which is four stories high and forms a tie between the east and west wings. It contains an east and west corridor which connects the main and south corridors and forms an important link for the movement of classes from place to place in the building. Still farther south of the central portion just described, there is a large cafeteria behind which will be found the kitchen, bakery, and the boiler and fuel rooms. The east and the west wings of the building also extend south of the central unit. In these are located the shops, an additional gymnasium, drafting rooms, science rooms, and special classrooms. The arrangement is such that the noise and odor-producing areas are well separated from the academic and other portions of the building. The arrangement also permits the centralization of the electric power lines, special ventilation, and plumbing and drainage.



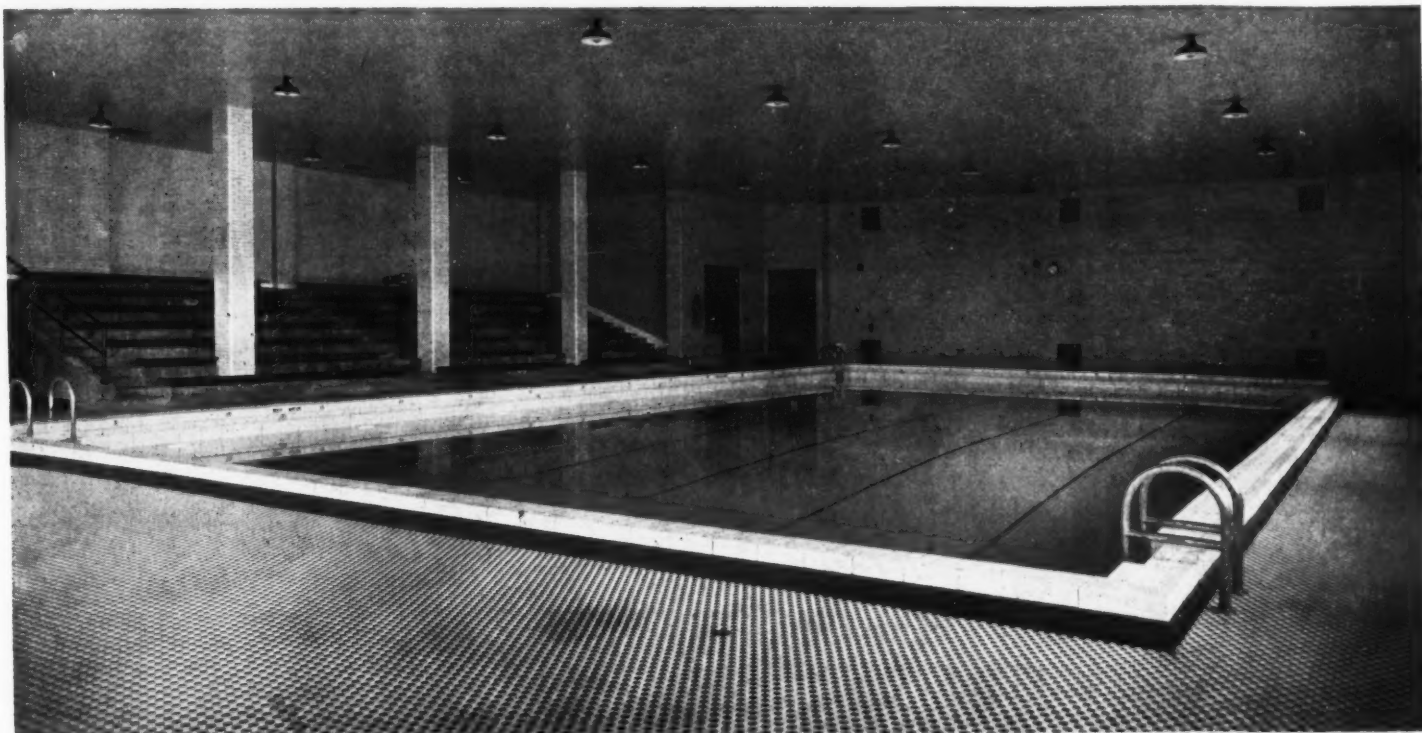




**TYPICAL FORGE SHOP, LANE TECHNICAL HIGH SCHOOL, CHICAGO, ILLINOIS**  
The room is equipped with 22 gas forges, a heat treating furnace, tempering tanks, grinders, and a drill press.



**LINOTYPE ROOM, LANE TECHNICAL HIGH SCHOOL, CHICAGO, ILLINOIS**  
The room is provided with three linotype machines, 16 practice keyboards, proof press and saw trimmer, racks and imposing tables.



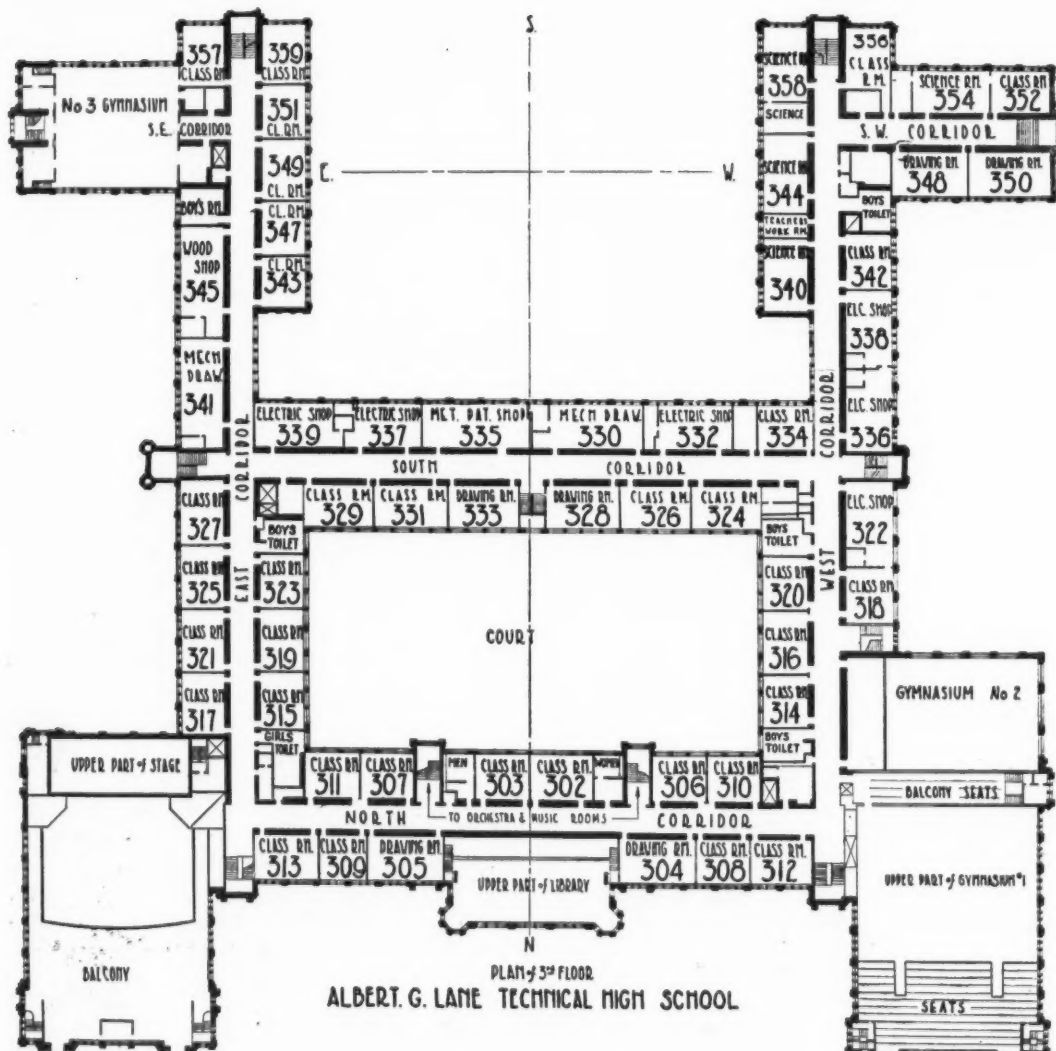
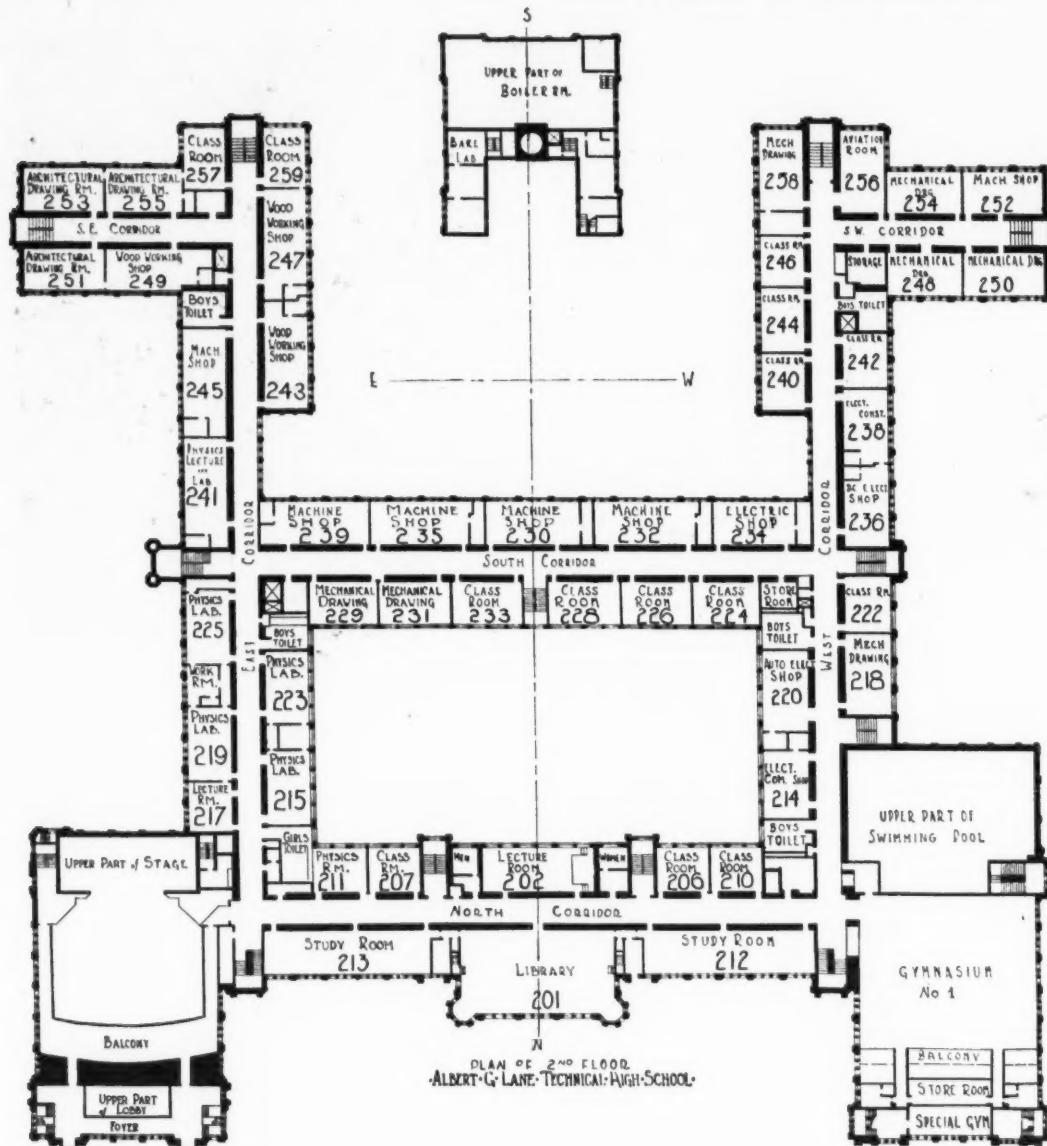
The pool is 40 ft. wide and 75 ft. long, underwater lighted, nonslip tile floor, stainless steel ladders, glazed brick walls.



**TYPICAL WOODSHOP, LANE TECHNICAL HIGH SCHOOL, CHICAGO, ILLINOIS**  
The shop contains 15 two-pupil benches, circular saw, two jointers, planer, band saw, sander, drill, and grinder.



**PRESSROOM, LANE TECHNICAL HIGH SCHOOL, CHICAGO, ILLINOIS**  
The room is equipped with seven job presses of various sizes, two Miehle presses, paper cutters, stitchers, punch press, and metal imposing tables.



Third floor plan, Lane Technical High School, Chicago, Illinois. On this floor are especially to be noted two small gymnasiums measuring respectively 85 by

60 feet and 68 by 69 feet. These are used for class work and are fitted with special apparatus. Gymnasium 3 has a balcony for special activities.

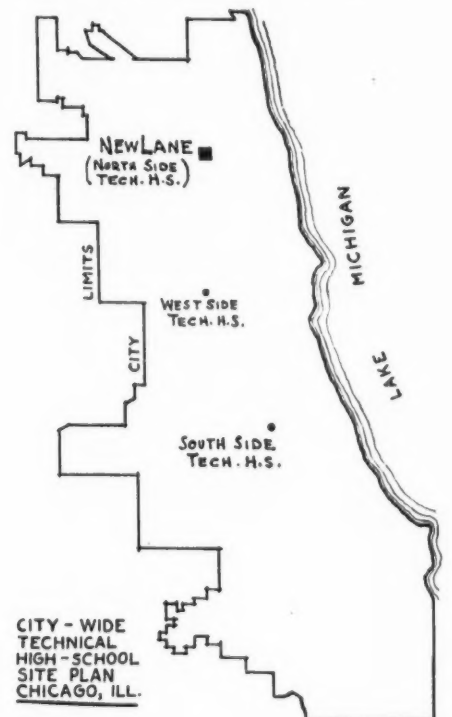
Second floor plan, Lane Technical High School, Chicago, Illinois. This plan makes clear the general shape of the building, which is a huge letter H with double cross bars. The auditorium, which is a complete theatre with a seating capacity of 2200, can be heated, ventilated, and lighted independently of the balance of the building. The stage has a complete lighting and switch-board system, and is provided with a public-address system. The library, which is on this floor, adjoins two large study halls and is in reality the academic heart of the school. It has a book-stack capacity of more than 10,000 volumes.

Machine design	Physics
Carpentry	Chemistry
Wood joinery	Band music
Wood turning	Vocal music
Wood patternmaking	Orchestral music
Cabinetmaking	Music theory
Architectural drawing	Gymnasium work
Linotype	Health training
Printing press work	Swimming
Composition	Athletics
English grammar	R.O.T.C.

Some of the outstanding facilities provided in the building to carry out this program include:

- An assembly hall of 2,200 capacity
- A lunchroom of 1,200 capacity
- A library of excellent design, two stories in height
- A lecture hall
- Four gymnasiums
- A swimming pool 40 by 75 feet.
- An outdoor athletic field with bleacher seats
- Parking space for 500 automobiles.

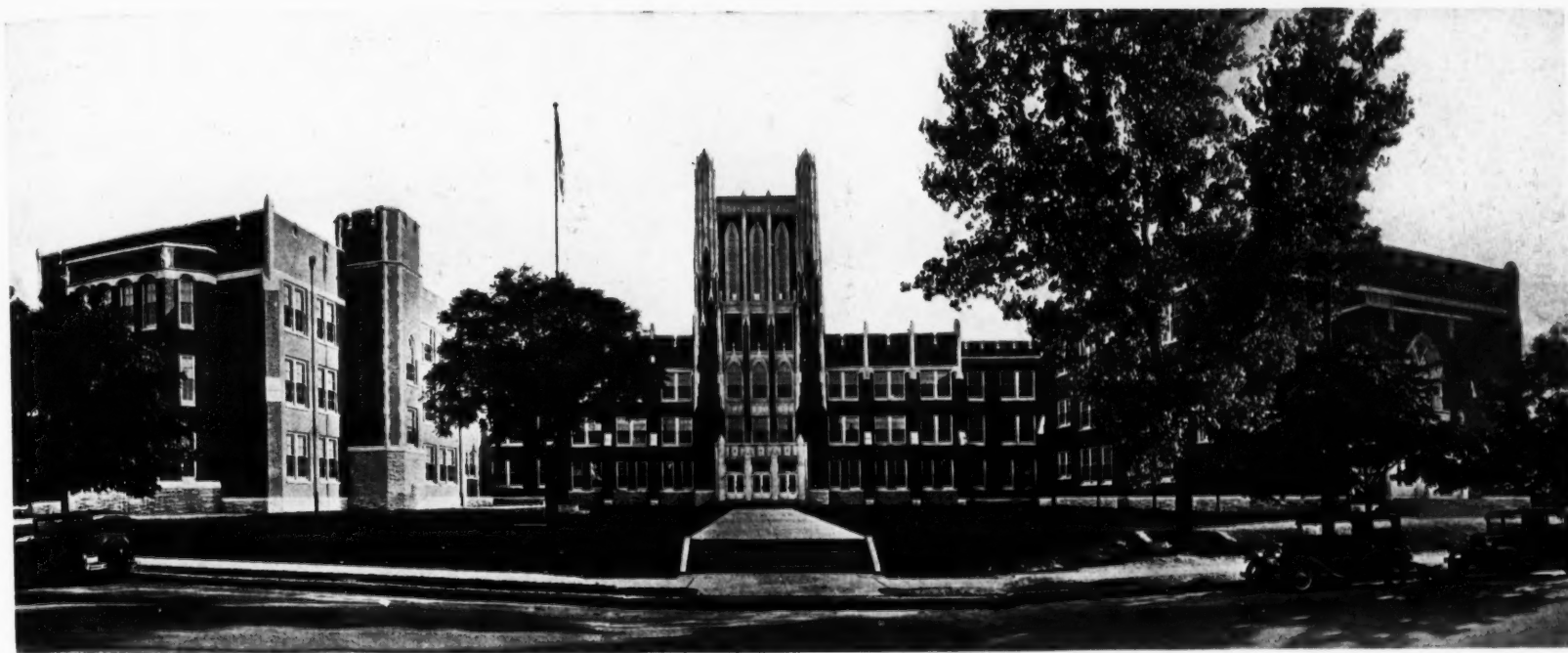
The school, which was planned to accommodate 6,200 pupils, comprises a floor area of over eleven acres, contains 12,467,000 cubic feet, and cost \$5,850,000, including equipment. The cost of the site alone was \$525,000.



The building is of steel frame, fireproof construction, insuring the permanency of the structure. The corridors, which are 14 feet wide, to accommodate the passing of a great number of pupils between periods, are lined with glazed brick and equipped with individual steel lockers. The floors are of mastic tile and terrazzo. The stairways are steel with poured terrazzo treads. The walls of all shops on the first floor are of glazed tile. Acoustical-correction material is used in the gymnasium, auditorium, lunchroom, library, study rooms, music rooms, and offices.

Today the old problem of housing the Lane Technical High School is again before us. Even though the new enrollment at Lane was restricted to 1B and 1A students, the total number now being cared for is 8,800. One month after the school opened, the crowding was so great that it was necessary to establish a ten-period day.





GENERAL VIEW, SENIOR-JUNIOR HIGH SCHOOL, SECOND AND LEE STREETS, LOUISVILLE, KENTUCKY  
J. Meyrick Colley, Architect, Louisville, Kentucky.

## Senior-Junior High School, Second and Lee Streets Louisville, Kentucky

*Samuel D. Jones, Business Manager, Louisville Board of Education*

Louisville's largest school building, a combination senior and junior high school, at Second and Lee Streets, was occupied at the opening of the new school year, September, 1934.

This building, shown in the accompanying photographs, is of collegiate Gothic design. The general shape of the building is that of a letter "H," and the rooms are grouped according to the activities which they serve. It is located on a 9-acre site in an old, closely built, residential section. It is placed on the north half of the plot, leaving about five acres for playground. This is somewhat less area than is considered ideal, but a larger lot was impossible to obtain owing to the necessity for closing long-used cross streets. There will be ample space, however, for a football field, hockey field, volleyball courts, and other recreational areas. The various courts are not for play purposes, but are sodded down and landscaped.

Owing to the fact that there are streets on four sides of the building, care was taken to eliminate any semblance of a rear or service side. This was accomplished by designing a chimney as a tower or campanile and by arranging all of the service entrances, such as the boiler room, janitors' supply rooms, cafeteria kitchen, and coal bins adjacent to each other, and enclosing them in a small courtyard, surrounded by a 12-foot brick wall, designed in keeping with the main building. The street entrance to this court is by means of a massive double-service gate.

The building is entirely fireproof, having a reinforced-concrete skeleton frame with brick and tile curtain walls and metal and plaster partitions. Maple floors are used in all of the classrooms, terrazzo for corridors and stairways, and linoleum for offices, restrooms, etc. Metal trim is used throughout with the exception of such spaces as the auditorium where a decorative effect is desired. Acoustical plaster or other acoustical treatment is used only where there is real need for it, such as the auditorium, music rooms, band room, etc.

In general, all classrooms are lighted unilaterally and, with few exceptions, every room receives sunlight at some period of the day,

the exceptions being the art rooms, drawing rooms, and similar activities. The rooms for special work are grouped in the proper relation to each other. This includes sewing and cooking, typing and bookkeeping, shops and drawing, various science laboratories, etc.

Contained in the building are forty-nine regular classrooms, twenty-seven special rooms including domestic science, manual-training shops, art, drawing, business courses, general science, chemistry, biology, and music; auditorium with full stage and stage equipment; a large gymnasium with electrically operated, soundproof folding partition, and adequate

showers and dressing rooms; three cafeteria spaces with central kitchen; general offices; medical suite, nurse's room, restrooms; teachers' rooms, library with consultation rooms, and social rooms. No portion of the building is below the level of the ground with the exception of the boiler and fan rooms, and bicycle-storage room.

In order to accommodate the teachers in these two units, there are two rooms on the first floor and one on the second for women teachers. There is also one room on the first floor for the men teachers. These rooms are completely equipped with toilet and lavatory



AUDITORIUM, SENIOR-JUNIOR HIGH SCHOOL, SECOND AND LEE STREETS, LOUISVILLE, KENTUCKY  
The auditorium has been named in honor of Dr. Reuben Post Halleck, nationally known educator, who was principal of one of Louisville's oldest high schools for many years.



CHEMISTRY LABORATORY, SENIOR-JUNIOR HIGH SCHOOL, SECOND AND LEE STREETS, LOUISVILLE, KENTUCKY

facilities. The girls' restroom on the first floor joins the medical suite which is situated to the left of the main entrance. To the right of this entrance is the office suite, composed of four private offices and locker room, one cafeteria and kitchen, and the auditorium. In addition to these special units there are eighteen regular classrooms, one bookkeeping room, one typewriting room, one printshop, and one metal shop. Each shop has a stockroom.

On the second floor is another cafeteria, the library, the girls' shower and locker room, eighteen regular classrooms, two science rooms, one cooking room, one sewing room, one general shop and stockroom, one woodshop and stockroom, one music room, and one art room.

The third floor, used by senior-high-school girls exclusively, has 16 regular classrooms, one art room, two typewriting rooms, two bookkeeping rooms, one chemistry and storage room, two biology rooms with hotbeds, two sewing



DOMESTIC SCIENCE LABORATORY, SENIOR-JUNIOR HIGH SCHOOL, SECOND AND LEE STREETS, LOUISVILLE, KENTUCKY

rooms, two cooking rooms with model kitchen, a model dining room, and two music rooms. At the fourth-floor level there is a room in a tower, 40 by 29 feet, which is used by the band. The growing room which adjoins the biology laboratory is located in the southeast corner of the building. The art rooms are on the north. These locations are particularly well adapted to the type of work that is carried on in these rooms.

The cafeterias are so arranged that children of different ages may be fed in different groups and with corresponding differences in menus. All food, however, is prepared in one kitchen, fully equipped with steam cookers and various machines for handling large quantities of food, including a complete service counter. There is a dishwashing room for each cafeteria, thus making it possible to keep the dishes for the two units separate. The large cafeteria is arranged with the service counter between the two dining rooms.

Adjoining the library there are two small conference rooms and a workroom. The various music rooms are in bays comparatively separate from the other classrooms. In these rooms the walls are covered with sound-deadening plaster. The auditorium is acoustically treated and has a fully equipped stage and projection room. The dressing rooms are located below the stage.

This building is planned with particular consideration for community use. The audito-



ART ROOM, SENIOR-JUNIOR HIGH SCHOOL, SECOND AND LEE STREETS, LOUISVILLE, KENTUCKY

The art room is located on the north side of the building, where it receives north, east, and west light. Special study has been given to the artificial illumination to provide the necessary amount of light for evening use.

rium and gymnasium have individual entrances and can be closed off from the rest of the building. There are toilet facilities at the rear of the auditorium near the entrance. This arrangement facilitates the use of the unit entirely separate from the rest of the building. This is also true of the gymnasium unit, including showers and dressing rooms, which is located adjacent to the cafeteria so that they may be used in conjunction for community activities other than athletic events. Temperature control throughout the building is arranged so that any portion may be heated independently of other portions.

The gymnasium has a floor space of 55 by 150 feet. There is a folding partition electrically





LIBRARY, SENIOR-JUNIOR HIGH SCHOOL, SECOND AND LEE STREETS, LOUISVILLE, KENTUCKY

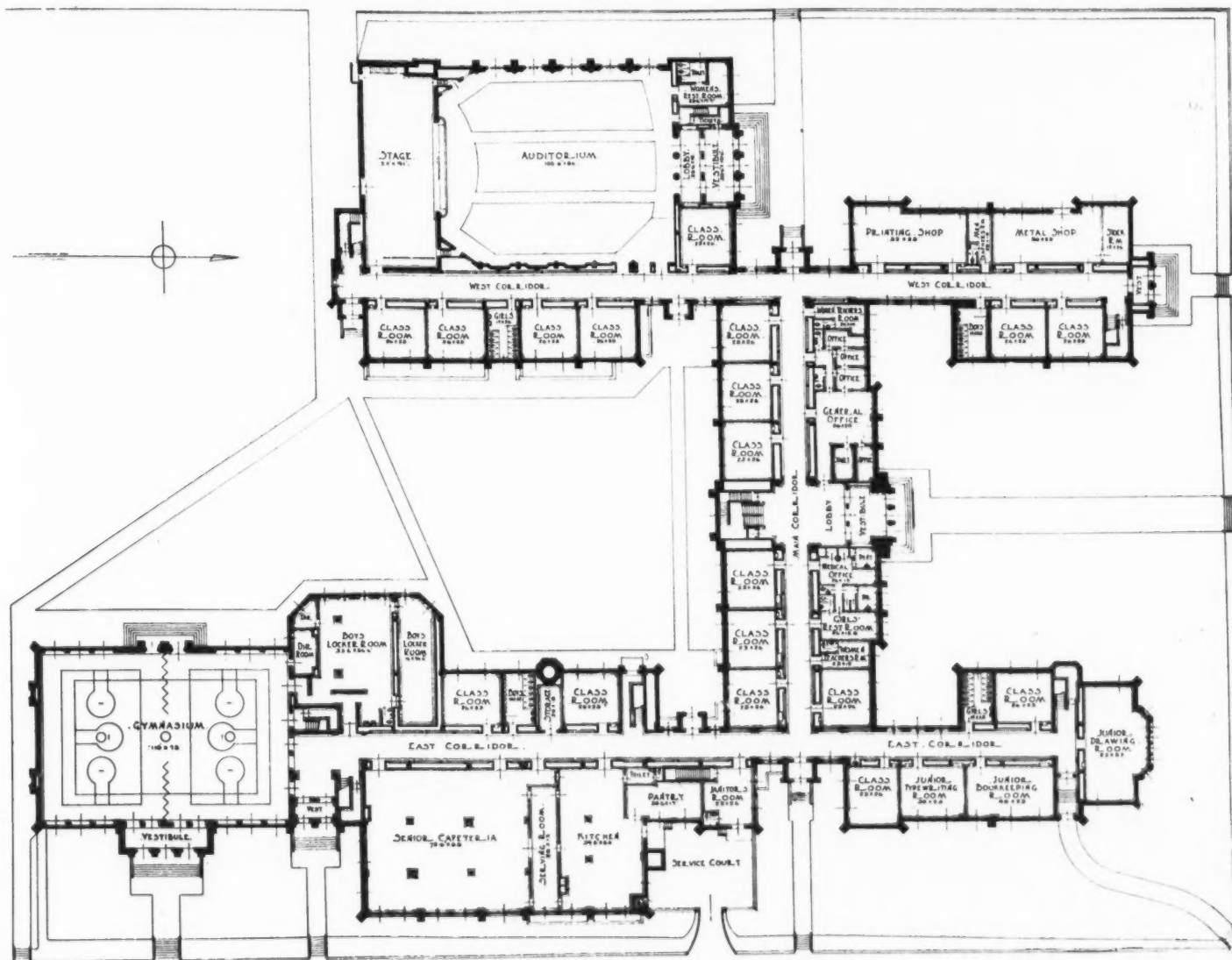
operated to separate the room into two gymnasiums, each 55 by 75 feet. The windows in the gymnasium are on the east and the west and extend to within  $2\frac{1}{2}$  ft. of the floor. No obstructions are near enough to prevent free circulation of the air through these rooms. The gymnasium floor is set in cushion chairs. When the gymnasium is used as a single room, there is about  $12\frac{1}{2}$  ft. of free space around a regulation-size basketball court where portable

bleachers can be placed to accommodate about a thousand people.

In both the boys' and girls' locker rooms there are drinking fountains, toilet facilities, and clothes hampers. The showers for the girls are arranged in units to accommodate two persons. The partitions are 5 feet high and the heat control for the water is at the end of each battery of showers. The low partitions and the control mechanism are planned so as to pro-

vide for supervision by the teacher. The control for the boys' showers is placed outside the showers also. The shower room for the girls is on the second floor, and that for the boys on the first floor.

There are no lockers in the various classrooms. Teachers are provided with individual lockers in the teachers' restrooms which are conveniently located on the first and third floors. For the pupils, there are lockers set

FIRST FLOOR PLAN, SENIOR-JUNIOR HIGH SCHOOL, SECOND AND LEE STREETS, LOUISVILLE, KENTUCKY  
J. Meyrick Colley, Architect, Louisville, Kentucky.

flush with the walls in the various corridors.

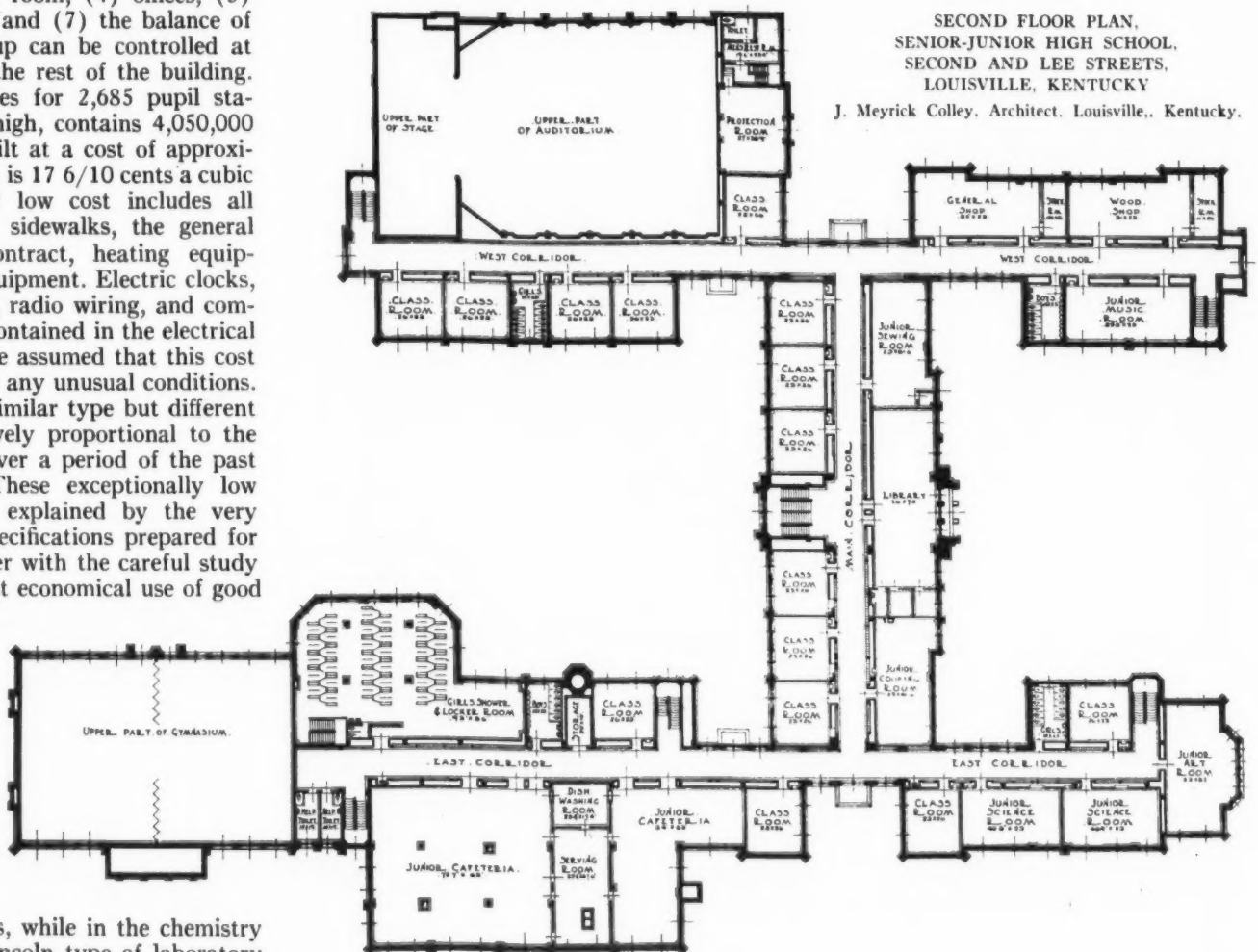
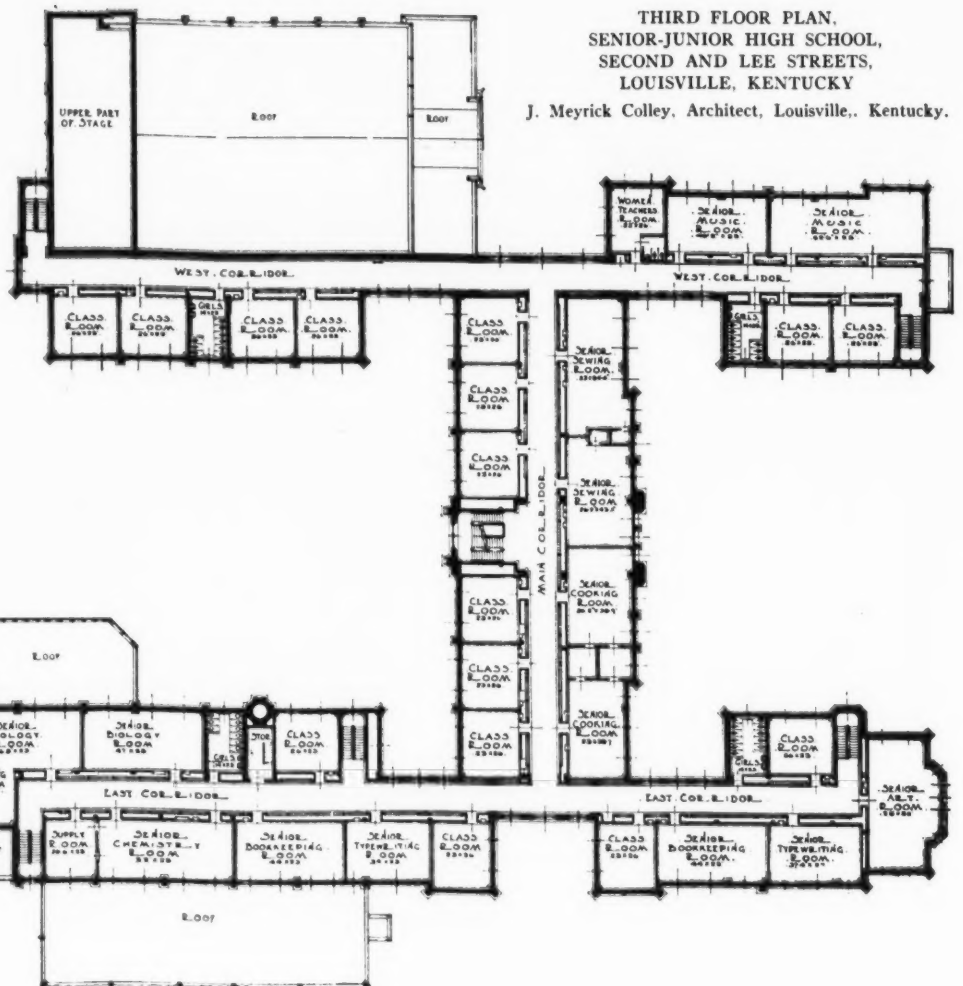
Experiences in other schools in Louisville indicate that boys are increasingly making use of bicycles. This has prompted including at the rear of this building a bicycle room 23 by 120 feet, sufficiently large to accommodate at least 200 bicycles.

The building is wired for a centralized radio system as well as for clocks, bells, telephones, and a double-supervised fire-alarm system having break-glass stations and klaxon sounders.

The heating and ventilating system is what is commonly known as a "split" system, air for ventilating being introduced into each classroom at approximately 72 degrees. Four separate central fan systems are used, three for the classrooms, lunchrooms, locker rooms, and the fourth for the auditorium. Four exhaust fans are located in the attic to draw air from the kitchens, locker rooms, chemistry rooms, and the picture booth. A steam-coil pan-type humidifier and an automatic air filter are installed in connection with each supply fan. The four supply fans handle a total of 169,000 cubic feet of air a minute. A pneumatic system of temperature control has been installed whereby the temperature can be held at "day" temperature, 70 degrees, or "night" temperature, 50 degrees, by moving switches in the basement. The temperature-control system has been divided into seven groups: (1) gymnasium, (2) boys' locker room, (3) girls' locker room, (4) offices, (5) library, (6) cafeterias, and (7) the balance of the building. Any group can be controlled at will without affecting the rest of the building.

The building provides for 2,685 pupil stations, is three stories high, contains 4,050,000 cubic feet, and was built at a cost of approximately \$717,060, which is 17 6/10 cents a cubic foot. This remarkably low cost includes all grading, sodding, and sidewalks, the general contract, plumbing contract, heating equipment, and electrical equipment. Electric clocks, telephones, fire alarms, radio wiring, and complete stage lighting is contained in the electrical contract. It is not to be assumed that this cost should be attributed to any unusual conditions. Cost for buildings of similar type but different sizes have been relatively proportional to the cost of this building over a period of the past six or seven years. These exceptionally low costs may be largely explained by the very complete plans and specifications prepared for these buildings, together with the careful study as to the best and most economical use of good materials. The building has been equipped with built-in equipment as well as that obtained from manufacturers, at a cost of approximately \$112,789. In this building unit, equipment for four girls is furnished in the cooking room for junior-high-school girls, while in the chemistry room there are the Lincoln type of laboratory tables. In the general-science room there is, just beneath the windows, a worktable the full length of the room with provision for gas, electricity, and water.

The Louisville schools erected under the recent school-improvement bond issue are all constructed by the board of education's own architectural department, of which Mr. J. Meyrick Colley is the supervising architect. The heating, ventilating, and temperature-control



systems were designed and installed under the direction of Messrs. Warren and Ronalds, consulting engineers. This building is the last of the series that were erected out of school-improvement bond issues, and shows conclusively the advantages to be gained through continued experience in planning and equipping school buildings. The immense number of small but important details, advantageously placed could

be secured only through continual contact with school buildings and the educational field.

With the exception of one area of the city which is at present in a transitional stage, Louisville now has a complete system of new and modern junior high schools, built and equipped in accordance with the latest theories of educational authorities, and in harmony with the best practice of the larger cities.



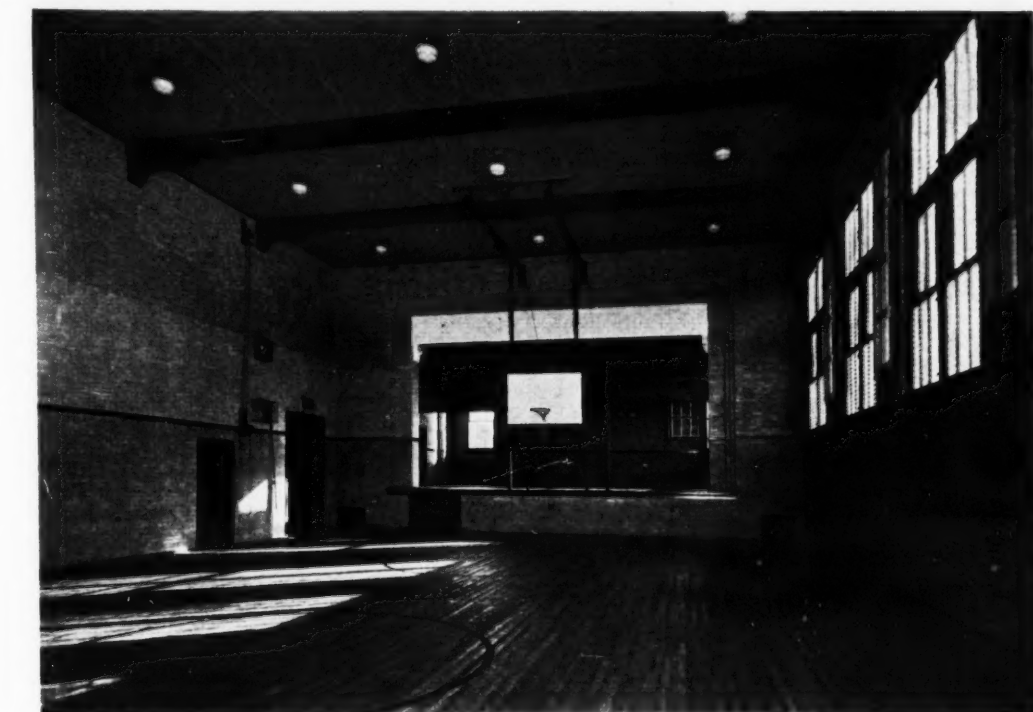
# The Gymnasium in the Schools of Today

Ralph C. Llewellyn, A.I.A., Chicago, Illinois

The change in attitude on the part of the public toward physical education and athletics that has taken place during the past 25 years is really remarkable and is probably not realized except by those who have been in a position to watch this development as it has taken place. I can well remember that in some of the early work of our office, in order to work in what would now be considered meager and totally inadequate gymnasium facilities, we were requested to camouflage the real purpose of these rooms by marking them on the plans "Assembly Room," "Lunchroom," or other innocent-sounding titles so as not to arouse the opposition of a section of the taxpayers who did not believe in spending money except for fundamentals. Thanks to the growth of competitive athletics and to the use of school buildings as community centers, this attitude has entirely changed. Practically nobody now questions the desirability of building a gymnasium in a school and the problem has become one of how far we can go and how large a proportion of the available funds can be spent on facilities of this kind. From the simple beginnings mentioned above the physical-education department has grown until some of our schools now boast quite elaborate plants containing separate gymnasiums for boys and girls, corrective gymnasiums, swimming pools, elaborate shower and locker facilities, team rooms, various offices, examination and storerooms, etc. The financial limitations which are usually present has led to various combinations of use, many of which are still employed in our newer buildings. In this article I am illustrating a few typical examples and making a few comments that have occurred to me as a result of experience in the planning of school buildings.

## Early Gymnasium Arrangements

The early gymnasiums were often simple rooms about 40 by 60 feet in size and with a story height of 16 to 20 feet. The locker and shower facilities were very limited, if provided at all. Scarcely no space was provided for spectators, as competitive games such as basketball had not become an important factor. It was customary to provide more apparatus than at present, and in the larger schools where it



GYMNASIUM-AUDITORIUM, OAK AVENUE ELEMENTARY SCHOOL, LA GRANGE, ILLINOIS  
Jos. C. Llewellyn Co., Architects, Chicago, Illinois

This room has been harmoniously treated in shades of brown and buff, and the color scheme has been carried out in the sound-absorbing ceiling. The effect is warm and dignified and permits of the use of the room for school entertainments and theatricals.

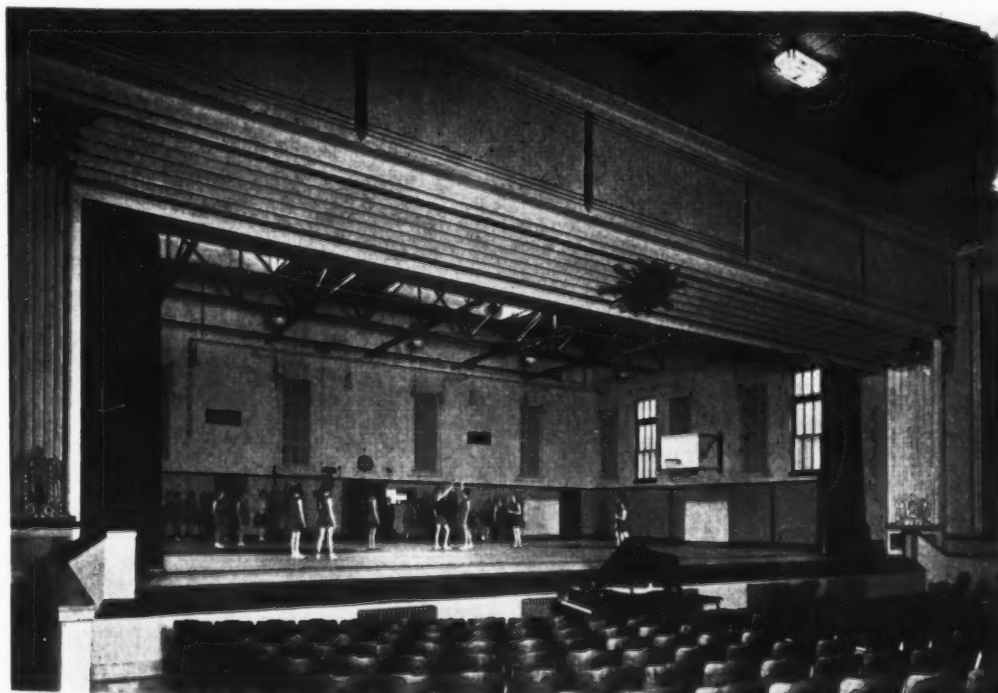
was feasible to increase the size of the gymnasium, it was quite customary to provide a running track. These gymnasiums were usually found in the high schools, seldom in the grade schools. Of more recent years, with the increased popularity of basketball, the problem has become largely one of providing playing courts with a provision for a large number of spectators. Running tracks are not so much in demand, having been sacrificed to get a better basketball arena. Apparatus is often assembled in a smaller corrective gymnasium and, due to the demand that all students get some physical training, the number of available floors is necessarily being increased to correspond with the enrollments of the schools. Also it is now usual to have a gymnasium or a combination gymnasium-auditorium in the grammar schools as well as the high schools, this room being more

and more used as a place of assembly and headquarters for various activities of the neighborhood surrounding the school.

The combination gymnasium-auditorium was an early development to get better gymnasium facilities at a low cost and, at the same time, to provide a place for occasional school or community assemblies. This arrangement is still used to good advantage in grade schools and small high schools. It has the disadvantage that there is a good deal of labor required in setting up movable chairs and the use of the room as an auditorium is therefore limited. As a very satisfactory example of this type, the arrangement at the Oak Avenue School in La Grange, Illinois, is shown—where the stage provides a gymnasium for girls and the main floor a gymnasium for boys, the two being separated by a rolling shutter. The stage is provided with a draw curtain and borders which come into play when the rolling shutters are raised. The main floor will accommodate about 350 movable chairs—the two rooms making a community auditorium with stage that is used for school plays and various occasional meetings. This building has a large classroom with stage and sloping floor with seats for about 125, which is used for teaching public speaking and auditorium subjects, so that the gymnasiums are free most of the time for physical-education classes. The walls of these rooms are wainscoted with a light-colored face brick; the upper walls are of sand-lime brick, and the ceiling is treated with a sound-absorbing material, providing enough absorption to very much help the acoustics for auditorium purposes.

## The Stage-Gymnasium

Another variation is the stage-gymnasium such as the one illustrated at the Lake Geneva (Wisconsin) High School. Here the auditorium seats are permanent and the stage is large enough to stage a basketball game. The stage scenery will move up into the roof trusses, and the room can be shifted from gymnasium to auditorium use in a very few minutes. In some cases, by the use of a soundproof partition at the proscenium, it is even possible to use both auditorium and gymnasium at the same time



STAGE-GYMNASIUM, HIGH SCHOOL, LAKE GENEVA, WISCONSIN  
Jos. C. Llewellyn Co., Architects, Chicago, Illinois.

This stage-gymnasium has been found effective not only for physical instruction, but also for games, pageants, and other school events.



GYMNASIUM, C. M. BARDWELL ELEMENTARY SCHOOL, AURORA, ILLINOIS

Jos. C. Llewellyn Co., Architects, Chicago, Illinois.

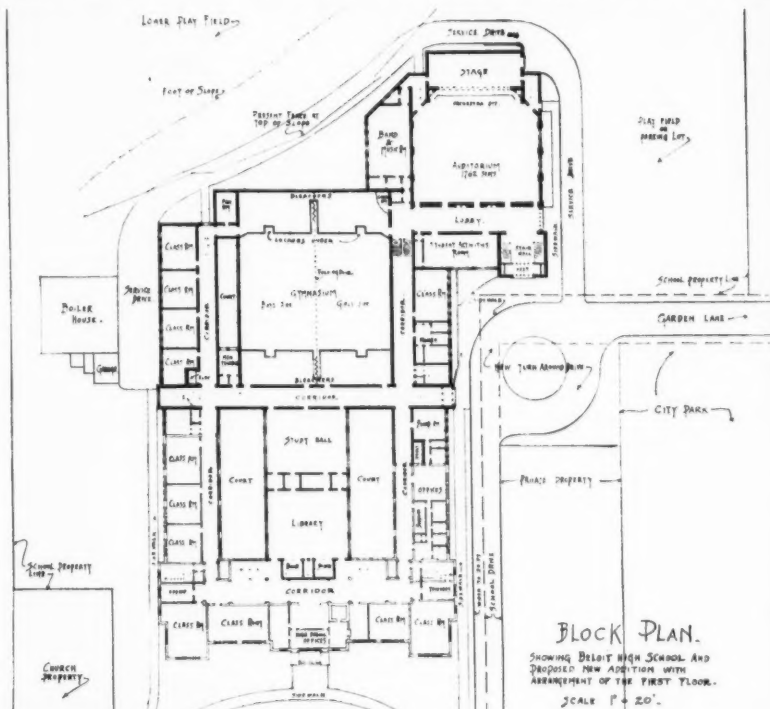
The ceiling of this room has been carefully treated with sound-absorbing materials, and the lighting units have been so treated that the room can be used for lectures and school entertainments.

for instructional purposes. At the Lake Geneva school, the site was so limited that a combination of this kind was the only feasible way to get a satisfactory auditorium and gymnasium, to say nothing of the saving cost. We have heard some criticism of the use of the stage-gymnasium for basketball games based on the idea that the spectators like to get close to the game and thus prefer bleachers in the gymnasium. However, we have had good reports from our own buildings of this type, and the authorities concerned have expressed themselves as satisfied with the results and with the savings in cost which the combination effected.

The increase in popularity of auditorium studies, such as dramatics, music, etc., has kept pace with the demand for increased athletic facilities to such an extent that a combination auditorium-gymnasium usually leads to a conflict of interests before the school has grown to a very large size. In other words, both departments soon want the room all the time, with the result that neither can give the best results. Therefore, when a school has a capacity of 400 to 500 pupils it becomes almost essential to provide separate facilities for the auditorium and the gymnasium. Furthermore, separate gymnasiums are needed for boys and girls, as time will not permit a schedule giving all

students sufficient gymnasium time on the same floor unless the school is quite small.

PLOT PLAN,  
BELOIT HIGH SCHOOL,  
BELOIT, WISCONSIN  
Jos. C. Llewellyn Co., Architects,  
Chicago, Illinois.



GYMNASIUM, GYMNASIUM AND MANUAL-ARTS BUILDING, OTTAWA TOWNSHIP HIGH SCHOOL, OTTAWA, ILLINOIS

Jos. C. Llewellyn Co., Architects, Chicago, Illinois.

### Large Divided Gymnasiums

Quite a common arrangement at the present time is to build the gymnasium with a large floor suitable for competitive basketball games with a large capacity of permanent bleachers, but arranged to be cut in half by a soundproof folding door so that one half becomes the girls' gymnasium and the other half the boys' gymnasium for instructional purposes. Motor-operated folding doors are now on the market which work easily and which make this plan a practical one. A plan of the proposed addition to the Beloit High School is shown, where this arrangement was used. The particular plan (being an addition to the present building) was influenced by the limitations of the site and the desire to use present facilities as auxiliary gymnasiums. A separate auditorium is provided in this case, as should be done in all large schools.

The new Gymnasium and Manual-Arts Building for the Ottawa Township High School (also illustrated), gives a good example of a large boys' gymnasium with facilities for lockers, coach, etc. The floor of this room is 70 by 132 feet, the long length being desired particularly for use of the R.O.T.C. in drilling. It, however, gives a chance for three practice basketball courts crosswise of the floor, while the main court is laid out lengthwise of the room

and allows space for the permanent seats to be extended down to the floor level by the use of five or six rows of movable bleacher seats. The room will easily accommodate 2,500 spectators at a game if bleachers are put in. The plans show how the space under the bleachers has been divided to provide separate quarters for general students, home and visiting teams, coach, and storerooms — each department with separate showers and toilets. The team rooms have been provided with a special type of locker with heating coils below and exhaust ducts connected to a separate fan at the top to insure the drying of wet suits. Another set of exhaust ducts takes care of the general ventilation of the locker rooms. This building is a separate unit, supplementing the main high-school building, and takes care of boys' athletics, shops, and some additional classrooms. The gymnasium in the original building has been turned over to the use of the girls.

### The Field House for Very Large Schools

A few large schools have developed their athletic facilities in the direction of a field house which will provide a large room with dirt floor and with, possibly, a movable basketball floor which can be set up for the basketball



season and stored away at other times. These buildings should provide gymnasiums, swimming pools, and all the usual locker, shower, and special rooms as well as the field house proper. The cost has usually prevented such a scheme from being fully carried out, and, of course, it would only be feasible for the largest schools of, say 2,000 to 4,000 pupils. It does seem, however, that in the large school where the number of playing floors and special rooms multiplies to take care of the larger number of pupils, it is a logical development to assemble all of these facilities in one unit or building—possibly with the girls' department in one wing, the boys' department in another, and a large field house for common use and for exhibition games, where spectators are accommodated, in between.

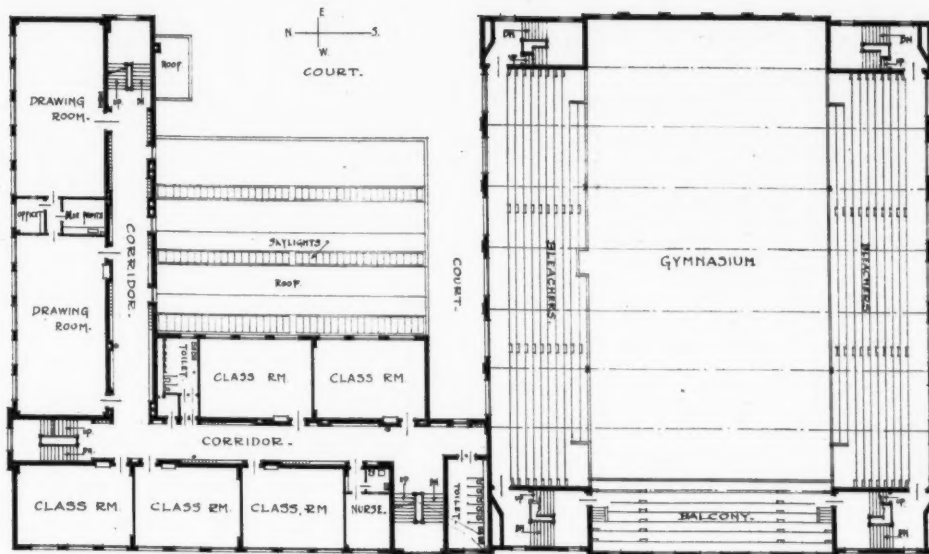
### Construction Details

So far as the details of construction are concerned, the gymnasium need not be expensive. There are some features that should be considered and which have a large bearing on the success of the room. The walls for a room 10 or 12 feet high should be of a smooth, hard material that will clean easily and will be free from corners or projections that will injure persons running into them. We have used smooth, hard brick with the best results. Glazed tile or a hard-finished fiber-board wainscot on a satisfactory background are also satisfactory. The upper walls, while being of a hard material, should be somewhat porous in the interest of acoustics. Common brick laid with a colored mortar joint is economical and looks well. If plaster is used for upper walls where not subject to damage, we would recommend lime rather than a real hard plaster, as there will not be so much "ring" from such a wall. The ceilings should be treated with an insulating board both in the interest of heat saving and in reducing reverberation. The amount of absorption needed to quiet the room should be figured out, and materials with the proper co-efficient should be used.

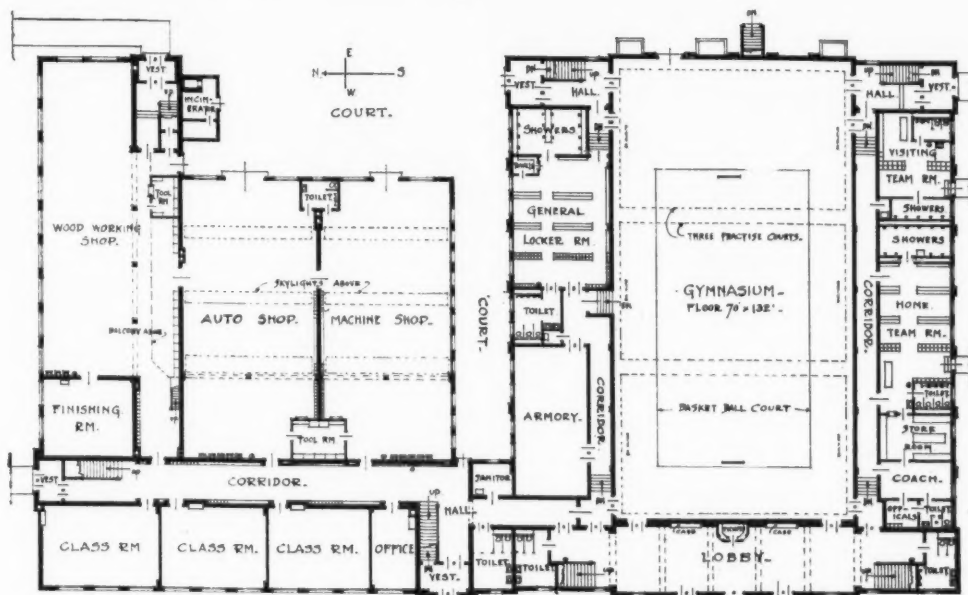
For floors we have used maple in the majority of cases and would advocate that they be at least  $1\frac{1}{8}$  inch thick in order to give more stock for the matching. It is desirable to have an elastic floor, and we have often specified sleepers to be laid on felted chairs in order to get this result. Some people prefer an end-wood surface as a precaution against slipping and the danger of splinters from the floor boards. We have used this type of floor with good success. There are other floors that have been suggested, such as mastic, linoleum, etc., but care should be taken in considering alternate materials to have a surface that is smooth and that will not cause a bad burn on a player falling on it. Also, the foundation should be elastic as the players' muscles are easily lamed by a floor that is absolutely rigid.



FIELD HOUSE, NORTH CENTRAL COLLEGE, NAPERVILLE, ILLINOIS  
Jos. C. Llewellyn Co., Architects, Chicago, Illinois.



THIRD FLOOR CLASS ROOM PART SIMILAR.



FIRST FLOOR PLAN.  
SCALE 1/8" = 1'-0"

SHARBOH ST.

GYMNASIUM & MANUAL ARTS BLDG. OTTAWA TOWNSHIP HIGH SCHOOL.  
JOS. C. LLEWELLYN CO. ARCHTS. CHICAGO ILL.

FIRST AND SECOND FLOOR PLANS, GYMNASIUM AND MANUAL-ARTS BUILDING,  
OTTAWA TOWNSHIP HIGH SCHOOL, OTTAWA, ILLINOIS  
Jos. C. Llewellyn Co., Architects, Chicago, Illinois.

A ventilation system should be provided that can use fresh air when a large audience is in the room. This system can be recirculated for ordinary use, or a split system can be used. On account of the large cubic contents of the gymnasium, natural ventilation is about all

that is needed except when an audience is present.

### Ventilation and Sanitation

Another important consideration is the illumination of the playing floor so as to avoid

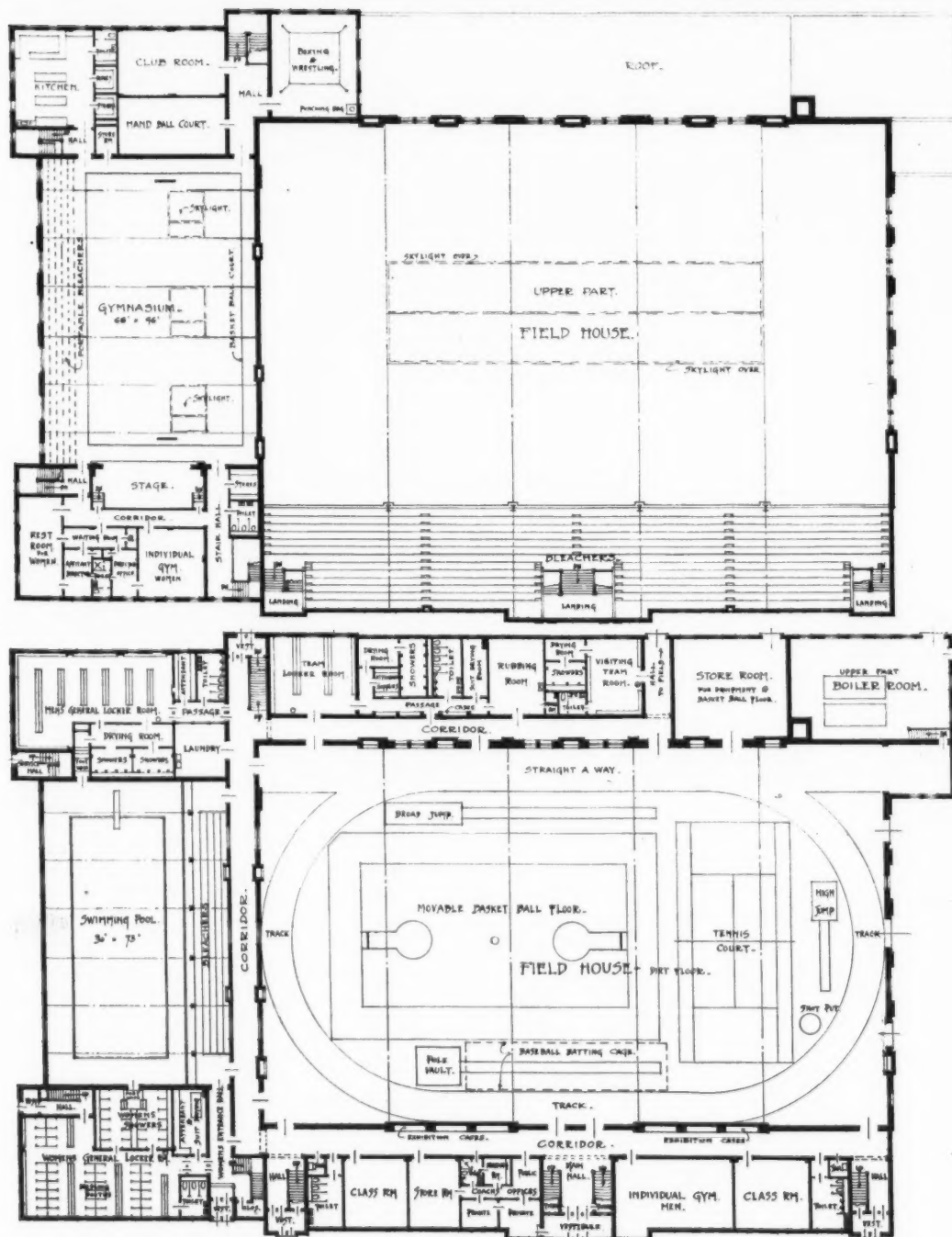


LOBBY TO GYMNASIUM, GYMNASIUM AND MANUAL-ARTS BUILDING,  
OTTAWA TOWNSHIP HIGH SCHOOL, OTTAWA, ILLINOIS  
Jos. C. Llewellyn Co., Architects, Chicago, Illinois.

This lobby has been simply but formally treated and impresses visitors and students with the dignity and importance of the educational work carried on in the building. The terrazzo floors and the mat glazed brick wainscoting harmonizes in color with the woodwork and the ceilings, and insures maximum wearing qualities with the minimum of upkeep.



FIELD HOUSE, NORTH CENTRAL COLLEGE, NAPERVILLE, ILLINOIS  
Jos. C. Llewellyn Co., Architects, Chicago, Illinois.



FIRST FLOOR PLAN.  
SCALE 1/8" = 1'-0"

MERNER GYMNASIUM & FIELD HOUSE - NORTH CENTRAL COLLEGE -  
NAPERVILLE, ILL. - JOS. C. LLEWELLYN CO. ARCHITECTS.

FIRST AND SECOND FLOOR PLANS

glare in the eyes of the players and so as to conceal the source of light from the spectators. Very deep metal reflectors are on the market which will give good results and which at the same time will protect lamps from injury by balls, etc. These units, on the whole, give a better result than the common practice of enclosing ordinary units in wire guards.

For the showers, locker rooms, etc., cement is often used for floors, wainscots, etc., as this is the most economical. We would advocate a harder, smoother, and better-looking material as well worth the difference in cost. We have used, with success, terrazzo quite largely for floors, wainscots, and built-up partitions. The fact that this construction is monolithic and does not break apart so easily as a construction built up of slabs when subject to rough usage, is a point in its favor. When it comes to the arrangement of lockers, dressing rooms, etc., a number of systems all have their advocates. For small schools the individual locker with a combination lock is probably the best. In the larger schools, a box locker or basket system is usually adopted to save space. Some system of ventilating the lockers must be provided, especially in team rooms where suits are often wet. Where the school assumes the responsibility for washing suits, towels, etc., and where regular attendants can be assigned to these duties, the basket system is probably the most economical of space and the most flexible.

In the foregoing we have only mentioned some of the highlights. Every school is different and the problem has to be worked out with the superintendent and athletic directors on the job. A program is essential, showing how many are to be provided for, what kind of lockers, showers, dressing rooms, storerooms, etc., are preferred; and it is then part of the job of the architect to collaborate with the school executives and work the various ideas into a satisfactory department that will also fit in with the rest of the facilities — as well as with the number of dollars that are to go into the school building. The question of cost almost always comes into the picture, and we can't always do just as we would like. The successful architect is the one who can make the best compromise and get the most and best-arranged facilities for the money available.





GENERAL VIEW, GRANITE FALLS HIGH SCHOOL, GRANITE FALLS, MINNESOTA  
Jacobson and Jacobson, Architects, Minneapolis, Minnesota.

## Granite Falls School Building Achieves Completeness and Flexibility

*Samuel A. Challman, State Director of School Buildings for Minnesota*

Granite Falls, Minnesota, is a typical small urban community, such as is frequently seen in all parts of the country. It has a population of approximately 1,800 and this has remained fairly stationary for the past ten years. The school enrollment ten years ago was 600. It is now 650.

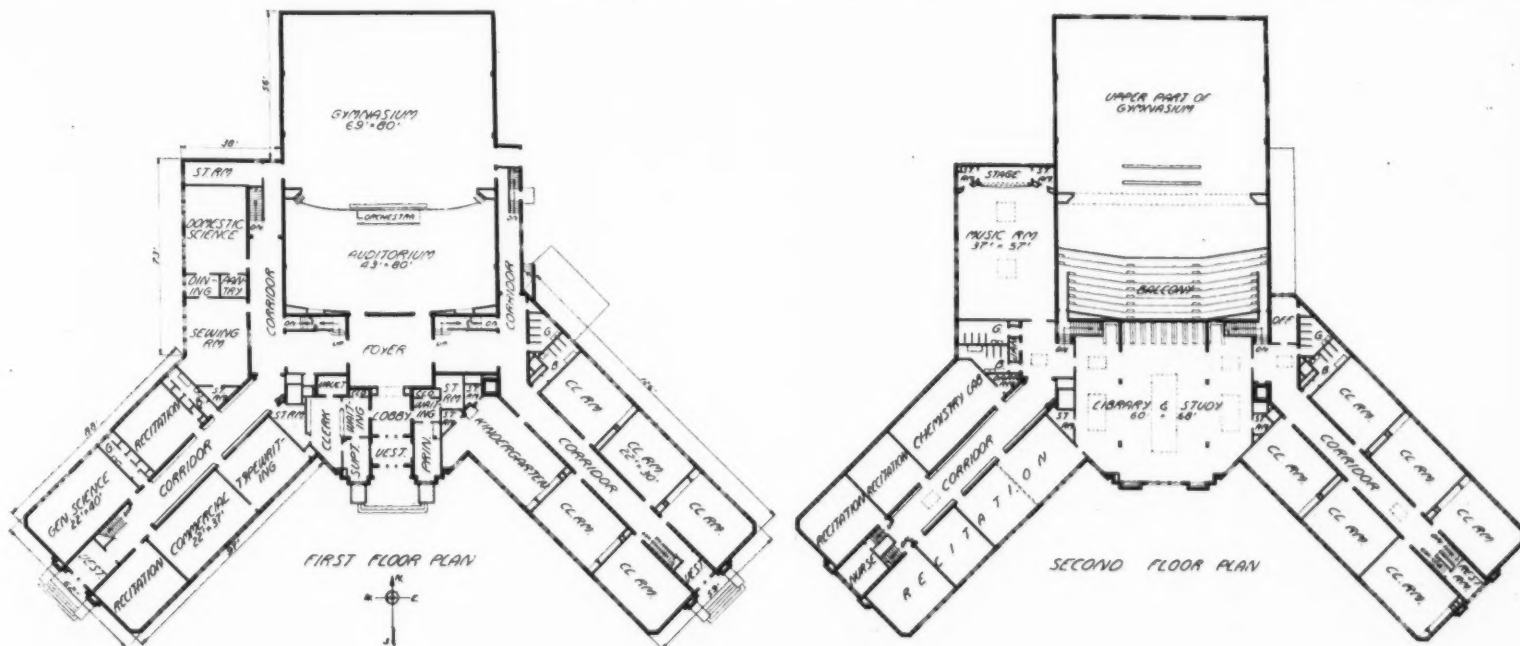
The school organization is that of a consolidated school. The school district is made up of 26 sections of land, including the plotted part of the city of Granite Falls. This large territory

of land implies that a large number of children are living beyond walking distance of the school and must be transported. At the present time, five busses are being operated and 140 pupils transported to and from school. The total cost of transportation last year was \$3,159 and the per-capita cost \$22.60.

For a number of years, Granite Falls maintained school in a frame building, two stories high, containing approximately 16 rooms. It was frequently referred to as the school with

the biggest fire hazard in the state. In order to get rid of it, however, it had to be torn down, and it was with a feeling of relief that parents and others witnessed the demolition of "the old white schoolhouse," every vestige of which has now been removed from the premises.

The plans and specifications of the new school building were prepared by Jacobson and Jacobson, architects, and Ralph L. Bloom, engineer. The first contract was let July 15, 1930, and the building was completed January



FIRST AND SECOND FLOOR PLANS, GRANITE FALLS HIGH SCHOOL, GRANITE FALLS, MINNESOTA  
Jacobson and Jacobson, Architects, Minneapolis, Minnesota.

7, 1931. It is of fireproof construction as would naturally be expected.

Although the building was planned as a complete unit, the features that make for flexibility were given careful consideration and incorporated in the plan. For future extensions, there are three possibilities that will call for very little alterations in addition to providing openings through walls. For interior changes, slight modifications in the dimensions of recitation rooms have been made. The partitions between these rooms will permit of such changes as will allow for the increase or decrease of floor area in the various rooms and possibly preclude any extensive alterations in the future. The following sizes have been worked out and have proved satisfactory: 27 by 22 feet; 21 by 22 feet; 38 by 22 feet; 26 by 22 feet; 28 by 22 feet; 27 by 22 feet.

Educators have advocated greater freedom and liberty in the schoolroom and it has devolved upon architects to work out the various requirements for such modifications of the school program. In order to have a sufficient amount of space for various activities, the physical conditions require one or more large rooms. In the Granite Falls building, a large room has been provided and this room, known as a combined Library and Study Hall, has materially added to the freedom with which pupils group themselves for co-operative work in different activities. The dimensions of this room are 67 by 48 by 17 feet 6 inches. Two other rooms which aid greatly to the development of a community spirit are the band-and-orchestra room with its 1,920 square feet of floor area and the chorus room with 2,077 square feet of floor area.

Health and sanitation have been given careful attention throughout. Eleven hundred and twenty square feet of floor space are occupied by the sanitary equipment. The facilities for physical education naturally center around the gymnasium which has a usable floor area of 5,280 square feet, the actual dimensions being 80 by 66 by 22 feet. The gymnasium is conveniently located with reference both to the lockers and showers and to the athletic field. The lockers and showers are comfortably spaced and unusually well lighted by natural daylight illumination as well as by artificial illumination. The lockers and showers for the girls occupy 1,728 square feet, and those for the boys, 1,324 square feet.

The auditorium, which has been accorded very desirable space, has a seating capacity on the main floor and the balcony for 750. The

(Concluded on Page 79)



COOKING ROOM, GRANITE FALLS HIGH SCHOOL, GRANITE FALLS, MINNESOTA

## Recreational Planning in Relation to School-Plant Planning

George D. Butler, National Recreation Association

(Concluded from December)

### Recreational Planning and the School Building

The acquisition and development of play areas are of more direct concern to city planners than is the planning of the school building, but indoor facilities are exceedingly important to both school and recreation authorities. The program provides many opportunities for developing skills on the part of boys and girls and of creating interests in crafts, art, games, dramatics, music, and many other activities which contribute in an important way to the recreational use of leisure time. As previously mentioned, the school has provided many indoor facilities in order to carry on this part of its program, among them gymnasiums, auditoriums, clubrooms, workrooms, nature museums, etc. Continued participation in these various activities after boys and girls leave school necessitates indoor facilities. It is widely recognized that local government must assume responsibility for providing opportunities for wholesome recreation and must provide facilities and leadership to make them possible. Where does the school fit into the picture of community planning for recreation? To what extent are school authorities ready to assume responsibility for providing indoor facilities for community recreation use? How far is it the function of the school to provide leadership as well as facilities? As in our discussion of outdoor areas, only problems relating to planning for the community use of school buildings will be considered.

It is well known that school authorities are quite ready to permit groups such as parent-teacher associations to freely use school facilities for meetings, and also to rent auditoriums to organizations for limited and definite periods. Such occasional use does not involve any peculiar planning problems. It is important, of course, that the auditorium which is to be used by outside groups be located on the main floor, easily accessible from the main entrance, and that checking and toilet rooms be available. It is also desirable that the auditorium be so located that it can be cut off from the rest of the building and also that it may be heated

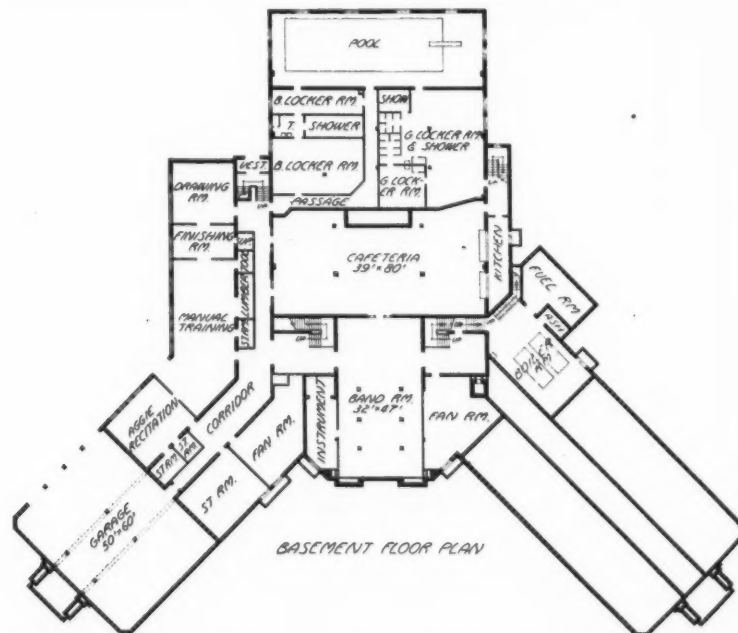
without heating the entire plant. This occasional use of the schools, however, is very different from the conception of school buildings as community recreation centers for the use of young people and adults. If school buildings are to be put to such use, definite planning problems require consideration. Because of this fact, it is very important that before the school building be planned the whole question of its use as a community recreation center be considered, in order that various facilities which lend themselves to such use may be so arranged as to give satisfactory service in both school and community programs.

### Nature and Extent of Community Uses

There is a wide difference in practice in the nature and extent to which school buildings are used for community recreation. In some cities recreation departments have been established by the school authorities, and all the school facilities which lend themselves to recreation use are made available through the recreation department to community groups under leadership. Newark is a city where such a plan is in operation. In other cities, typical of which is Detroit, school authorities turn over the use of certain features of the school plant after school and during the evening hours to a city recreation or park department which conducts a program of activities in the schools. Sometimes local organizations and groups are permitted to use school-building features either under their own leadership, or under leaders appointed by the board of education, and under varying conditions as to meeting expense of heat, light, and janitor service. In still other cities very little free use of the schools is granted except to organizations in some way interested in the school program.

For a number of years elaborate school-building programs were carried out with popular support and relatively little thought was given by the public to the intensity of use which the various features in these buildings received. Under present conditions, however, with the demand for curtailed budgets, school-building projects are likely to be subjected to careful

(Concluded on Page 78)



BASEMENT FLOOR PLAN, GRANITE FALLS HIGH SCHOOL, GRANITE FALLS, MINNESOTA  
Jacobson and Jacobson, Architects, Minneapolis, Minnesota.





GENERAL EXTERIOR VIEW, RYE CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE  
Harold E. Mason, Architect, Leominster, Massachusetts.

## The Rye Consolidated School at Rye, New Hampshire

*Roy W. Gillmore, Superintendent of Schools, Rye, New Hampshire, and Harold E. Mason, Architect, Leominster, Massachusetts*

The town of Rye, New Hampshire, is feeling justly proud of its new consolidated school. It is the consummation of a drive of a small group of forward-looking citizens begun prior to the school-district meeting held in March, 1923. At that meeting a special committee of ten leading citizens was appointed to consider local school problems and report at a later meeting. A quotation from the committee's findings follows:

"The committee considered the matter of a partial consolidation by an addition to the

Wedgewood building which would accommodate the fifth and sixth grades. Plans were drawn and estimates made on an addition costing twelve or thirteen thousand dollars to construct and some three thousand dollars a year to maintain. But the committee found that the number of pupils at present in these grades did not make the change imperative, and the committee thought it best not to recommend a change which, in case of future consolidation, would be largely a waste of money. Therefore, after such consideration as the committee could

give, a decided majority recommend that, so far as consolidation is concerned, our schools remain as they are for the present.

"But this does not mean that the committee is opposed to the plan of school consolidation, or that it does not feel the force of the advantages which have been gained by some towns which have made the change. The committee does not wish to go on record as feeling fully satisfied with the schools as they are, while appreciating their many excellencies. Perfect satisfaction would be fatal to all advance.



DOMESTIC ARTS ROOM, RYE CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE

This room serves the double purpose of lunchroom as well as food laboratory. Adjoining it is a supply storage room and a pantry. The latter has an outside entrance so that deliveries may be made without interfering with the balance of the school.

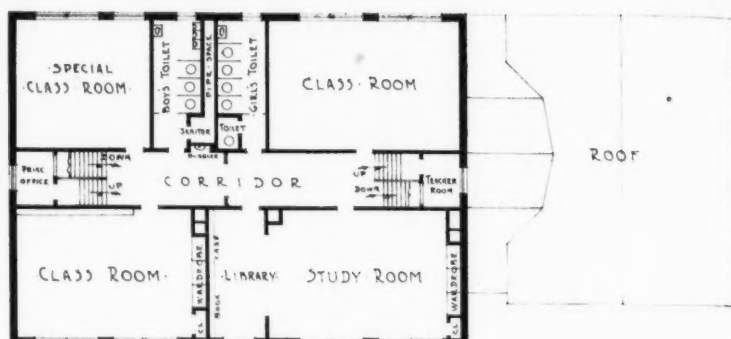


TYPICAL CLASSROOM, RYE CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE

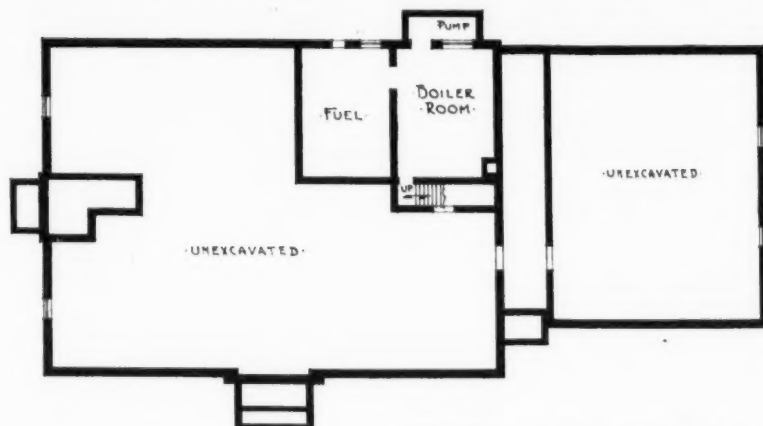
The room illustrated is used for primary classes. The doors of the built-in wardrobe are fitted with tackboard for mounting students' work. Blackboard is limited to the space opposite the windows.



RYE CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE



SECOND FLOOR PLAN, CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE

BASEMENT AND FIRST FLOOR PLANS, CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE  
Harold E. Mason, Architect, Leominster, Massachusetts.

Progress is born of dissatisfaction with things as they are."

This dissatisfaction with things as they are continued with this little group of people until in the report of the then superintendent of schools, Mr. Charles N. Perkins, published in March, 1929, we find the following:

"I am confident that the citizens of Rye will decide very soon to provide their children with ample school accommodations by erecting a new building at Rye Centre. I further recommend that this building be built of sufficient size to accommodate all of the pupils of the town from grades one to ten, inclusive, or if suitable arrangements can be made with Portsmouth to take our pupils of the tenth grade, to include in the building grades one to nine, inclusive."

At that time there were four schools in Rye, three of them accommodating two grades each, and the fourth caring for grades one to four in the central section of Rye, and the so-called Junior High School which houses grades seven to ten. This necessitated a large bill for transportation and had but little advantage over the former system of six grades in each school. A large number of the children were still housed in buildings where "cross lighting" was the rule, and where sanitary conditions were far from modern. The pupil's desks and seats were firmly screwed to the floor, allowing no flexibility for modern school procedures. The schoolrooms themselves were heated, but the cloakrooms were in the vestibules which were entirely without heat.

In 1931, the local Parent-Teacher Association and the parents began to campaign for a consolidated school. Few were the meetings during that year when the subject was not under discussion. One meeting was in charge of the local superintendent of schools, who presented the advantages of a consolidated school for this particular town. This was followed by a lively discussion in which most of the members expressed their views. To some the discussion was purely academic, but to a goodly number it presented a cause to be championed. The Men's Club and the local chapter of the League of Women Voters became interested as units.

The movement was rapidly gaining momentum when in February, 1932, the largest of the four buildings burned. This necessitated the appointment of a committee in March to make recommendations to the next school meeting. This committee consisted of seven members, including the three school-board members. This committee was later increased to nine. They made an exhaustive study of school costs during the previous ten years and prepared estimates of future costs under a nonconsolidated and a consolidated system. The figures given in this study included the amortization of the anticipated debt. The complete study was presented to the citizens in school meeting, showing that the increase in tax rate would be less than two dollars — and that if the existing schools were to be modernized an increase in tax would be unavoidable. Two options were placed before the meeting — the building of a

four-room school to replace the one destroyed, or a complete consolidated school. The vote was unanimous for the latter plan.

The including of a gymnasium or "play room" was discussed at length, a few citizens feeling that such was unnecessary and a fad. It was explained to the meeting that this room would be used for oral English work, for dramatization, for a lunchroom, and for systematic physical instruction as well as for "play." The people felt the force of this argument and voted to include such a room.

Following its appointment, the committee organized and began a study of grade and consolidated school buildings in New Hampshire and eastern Massachusetts. Advertisements were made for preliminary plans and several architects submitted sketches and preliminary estimates. Several of these appeared before the

(Concluded on Page 65)



STUDY ROOM LOOKING TOWARD LIBRARY, RYE CONSOLIDATED SCHOOL, RYE, NEW HAMPSHIRE





EXTERIOR VIEW, JUNIOR HIGH SCHOOL, NORMANDY, MISSOURI  
William B. Ittner, Architect, St. Louis, Missouri.

The main front of the building has been treated conservatively to harmonize with the design of the remaining buildings in the group.

## Junior High School at Normandy, Missouri

### Third Unit of Junior-Senior Group

William B. Ittner, F.A.I.A., LL.D., St. Louis

Fred B. Miller, Superintendent of Schools, Normandy

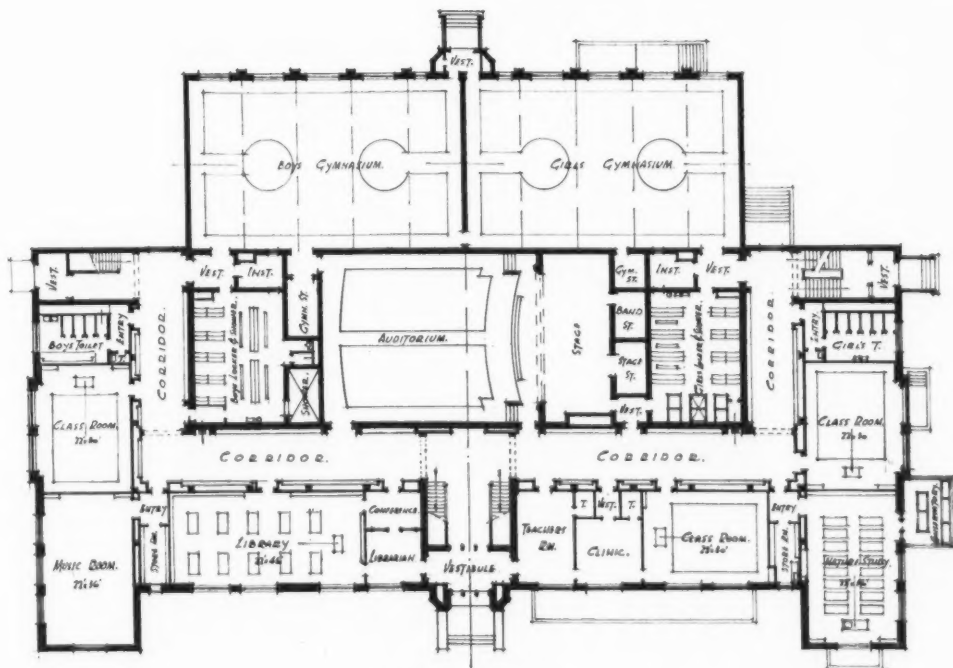
Normandy, Missouri, is essentially a residential suburb in St. Louis County. Its strategic position for territorial expansion to the north and west, and the fact that its eastern boundary coincides with St. Louis city limits for three miles, account for its rapid population growth and its importance as a school center. Since 1910 Normandy's population has increased from 4,000 to 40,000. The consolidated school district enrolls 4,311 pupils with 1,500 students in the junior-senior grades.

The junior high school was completed in March, 1933, and adds the third unit of the planned five-building junior-senior group. When the Normandy board purchased the 25-acre tree-studded rolling tract for its secondary-school group, it fell heir to the obsolete academic building already on the site. By making temporary use of this structure, the board proceeded at once with the two initial buildings, the vocational unit and the gymnasium, both completed in 1928. The new junior school makes possible the withdrawal of all activities from the old seminary building except senior classroom work. It is expected that the senior high and the boiler plant will follow during the present year with federal aid, thus completing the group.

The new junior school, in the main, is three stories in height. The drop in the grade, however, gives three well-lighted general shops and several storerooms on the basement level. The building is fire-resistive, of brick-and-concrete

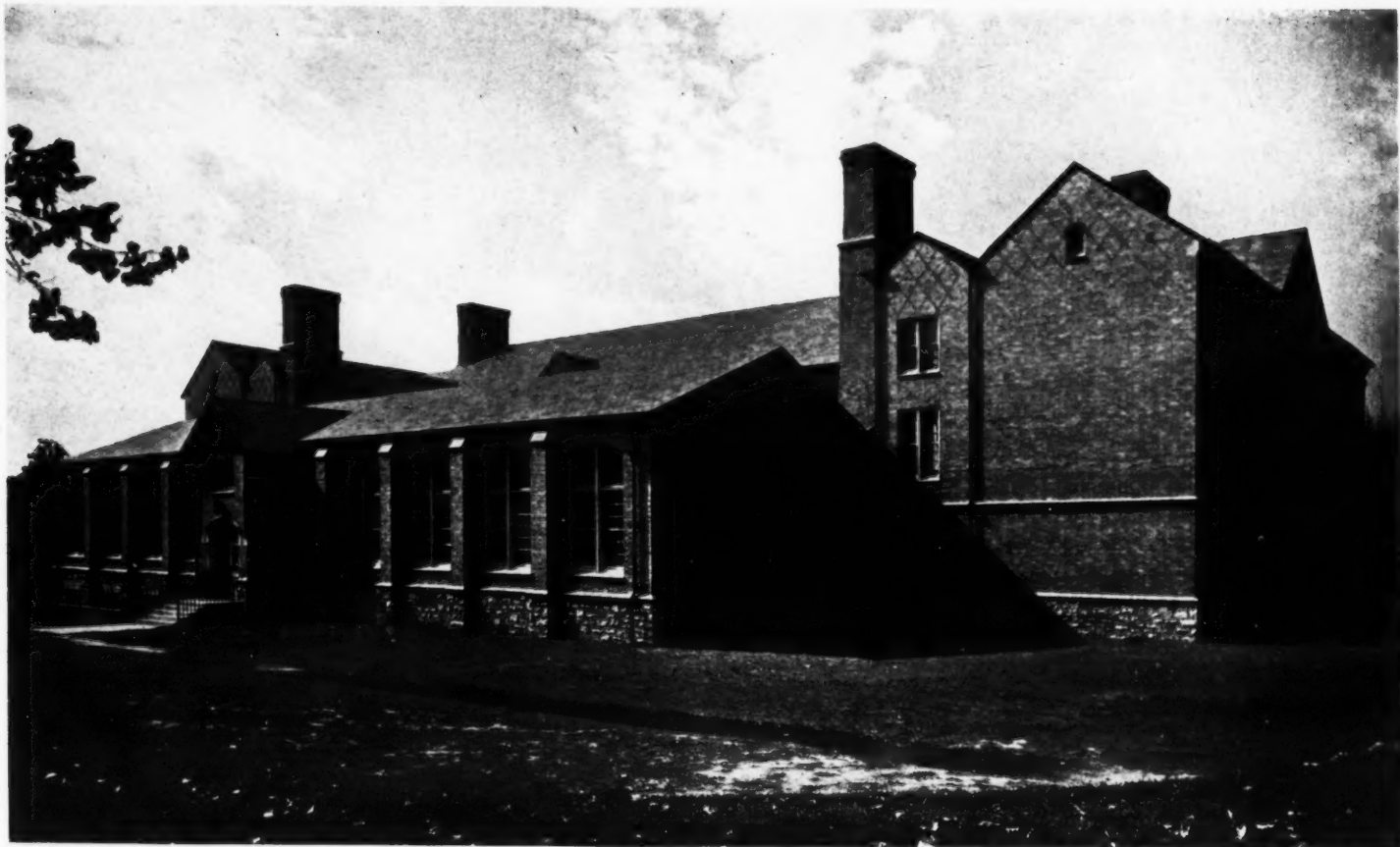
construction. It is flexible in plan, with opportunities for easy expansion. Its design and material harmonize with the two preceding buildings.

As the central administrative offices will be located in the proposed senior high school, nothing but a small supplementary office was included in this junior school. Also, since the



FIRST FLOOR PLAN.

FIRST FLOOR PLAN, JUNIOR HIGH SCHOOL, NORMANDY, MISSOURI  
William B. Ittner, Architect, St. Louis, Missouri.



REAR VIEW OF EXTERIOR, JUNIOR HIGH SCHOOL, NORMANDY, MISSOURI

William B. Ittner, Architect, St. Louis, Missouri.

The rear of the building has been treated as carefully as the main front because it adjoins the main play area and is seen by the pupils quite as frequently as the other sides.

large auditorium is planned for the senior school, a classroom auditorium seating 250 was considered sufficient for this school. The two gymnasiums were planned for the juniors, with full complement of lockers and showers, releasing the gymnasium building for the senior students and adults. Physical education and community-recreational activities play an important part of Normandy's school life; hence the attention to indoor and out-of-door physical education, and leisure-time facilities. Even with the complete five buildings, the 25-acre site gives space for an athletic field, a quarter-mile track, a baseball diamond, tennis courts, and an abundance of free play space.

Three general shops were provided for the junior students, releasing the vocational building generally for the seniors, adults, and evening-school uses. The three general shops are interesting, comprising a home-mechanics shop,

a novelty shop, and a cement shop. There is a sewing room for girls but home-economics courses and the cafeteria are all concentrated in the vocational building.

The building is plastered throughout, except the shop and gymnasiums. The latter is finished with vitrified-brick wainscot, with the same kind of brick for all corridors.

All floors are linoleum, laid on cement, except the shops, the toilets, and the gymnasiums. The toilets have terrazzo flooring, and the gymnasium floors are of maple. Recessed steel lockers are placed along the corridor walls.

The building is heated from the central power plant, with ventilating units in the gymnasiums, assembly room, and toilets.

This school is planned for 1,000 students, with a total cost of \$216,000, or \$216 per pupil.

## HOW THE NORMANDY SCHOOL DISTRICT CARRIED A BOND CAMPAIGN

Mary Holbrook, Normandy High School, St. Louis, Missouri

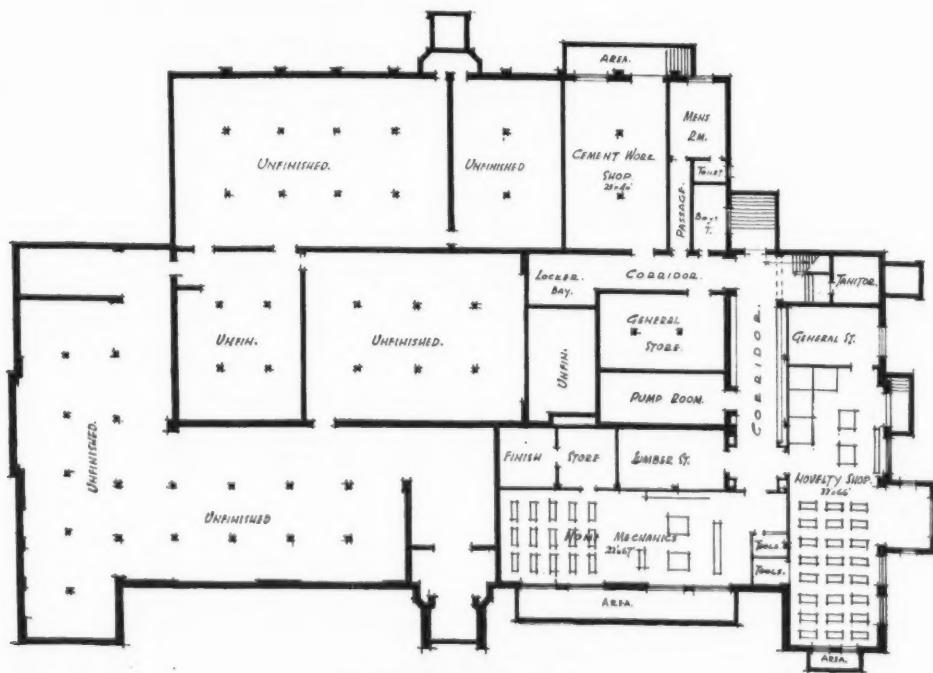
In 1932, the worst year of the depression, when ninety-five out of a hundred bond campaigns were failures, the Normandy Consolidated School District in St. Louis County, passed a \$225,000 issue, by more than a 3-to-1 vote, to construct a junior-high-school building.

Not only was this a hard year in which to vote bonds, but it was especially difficult to vote them for a junior high school, because the junior-high-school organization had just been abandoned in the neighboring city of St. Louis for purposes of economy. However, the Normandy board of education knew there was a real need for a junior high school and felt reasonably certain of the support of the people.

The success of this campaign had its beginning in 1926, when the teachers were not being paid, and bond issues had failed to pass in Normandy, too. In that year, after five unsuccessful attempts to vote bonds, Supt. Fred B. Miller and the board of education decided on a plan which proved effective and which has resulted since that date in successful bond elections, making possible the remarkable growth that the Normandy District has experienced.

The reason for the lack of school support, with its resulting failure of bond elections, was believed to be a lack of confidence on the part of the people in the schools due to their ignorance of the situation. The plans for the management of the campaign, therefore, centered around the overcoming of this lack of faith, and making the real situation known to the public.

A citizens' committee was the solution of the problem. The president of the parent-teacher association, Mr. August J. Kruse, was elected chairman of a committee of citizens, called to the school to discuss the issue. The school was at their service to furnish them with cost data, comparative statistics, reasons for the bonds,



GROUND FLOOR PLAN.

Scale 1/4\"/>

GROUND FLOOR PLAN, JUNIOR HIGH SCHOOL, NORMANDY, MISSOURI  
William B. Ittner, Architect, St. Louis, Missouri.



and other necessary information, such as who could vote in a school election. The citizens' committee functioned through subcommittees, namely, women's vote committee, speakers' committee, publicity committee, legislative committee, finance committee, and get-the-vote committee.

The citizens' committee, of which the public were members, made a school survey, noted the needs themselves, and proposed their own tax levy to meet the needs. A 4-to-1 vote for the \$122,000 bond issue and necessary tax levy was the answer of the people to the campaign. Though the Normandy board of education and Superintendent Fred B. Miller have not relaxed their efforts in the least, the Normandy voters have not turned down a request for funds since 1926.

In 1927, the board of education, after surveying its needs and allowing for the usual increase in efficiency, announced a 30-cent tax reduction which was approved by the citizens' committee. In 1928, the people voted \$342,000 in bonds to erect a vocational school and gymnasium. In 1929, the people again approved an issue of \$80,000 in bonds for grade-school needs, and in 1930, \$110,000 in bonds was voted to complete a wing of the vocational school. In 1931, a \$50,000 issue for grade schools was approved.

In the spring of 1932, no bonds were requested, but, after school was begun in the fall, the need for more classrooms was urgent, and the financial situation of the district was considered safe to ask for bonds. It was believed wise to build while construction costs were low.

Because August J. Kruse, who had so successfully managed the first citizens' committee, had been placed by the people on their board of education, a new man, Leo W. Painter, was chosen by the people to direct the campaign. The committee renamed itself the "Boost the Bond Issue Committee." The superintendent's secretary, then Miss Elizabeth Lyman, became the secretary of the committee, thus making the facilities of the school available to the committee. The personnel of the school existed, however, only to carry out the wishes of the citizens' committee, whose purpose was to get the approval of the voters for the \$225,000 bond issue to construct a junior high school on the high-school campus. The district already owned the site, because it had provided in 1923 for the purchase of a 24-acre tract which has proved adequate to meet the tremendous growth of the high-school plant.

The plans of the committee included a mass meeting at which school organizations entertained, a neighboring school superintendent made a speech, and pledge cards were distributed. In addition, pledge cards were sent to the parent-teacher associations and service clubs of the seven grade schools and high school. Each card promised at least one vote for the bond issue. Pledge cards were sent to the homes of the pupils through the homeroom organization of the school. Each homeroom teacher was held responsible for the return of the cards of her group. One week prior to the election date, letters were sent to all signers, reminding them of their pledges. Two days before the election, post-card reminders were sent to the entire mailing list of the district.

On the election day, the district was divided into seven areas, corresponding to the grade-school districts. A chairman was named for each district and pledge cards for his district given to him. Cars, driven by teachers and parents, called at the addresses of all pledge-card signers, and delivered the voters to the polls. The election carried, 1,418 to 569, despite some organized opposition.

This describes the technique of the bond elections themselves. However, Superintendent

Miller in the administration of his schools, always has in mind the confidence of the people, and the schools are at all times at the service of the people. Mr. Miller has the people of the district backing the schools in every project which they undertake. He believes that the best publicity for schools is obtained by having good schools and works constantly on that theory. Last year 90,240 persons attended evening meetings and events at the school buildings.

Through a monthly bulletin to the teachers and an annual report to the board of education, cost data are always available, and the facts, when they are disclosed to the people, are conducive to winning their confidence and support.

By comparative data, the school tax in Normandy District in 1934 was \$1.80 per \$100 of assessed valuation, while in neighboring districts it went as high as \$2.46. While Normandy's tax rate is low, the per-pupil cost of education is comparatively low, being \$72.21 for the district; \$88.39 for a high-school pupil, and \$62.29 for an elementary-school pupil.

By graphs the people are informed of the sources of the school dollar and of the purposes of its expenditure. According to the superintendent's report of 1933-34, the Normandy schools were supported as follows: local taxes, 82.7 per cent; county tax, 9.32 per cent; state tax, 5.58 per cent; other revenue, 2.4 per cent. The dollar was expended as follows: instructional service,

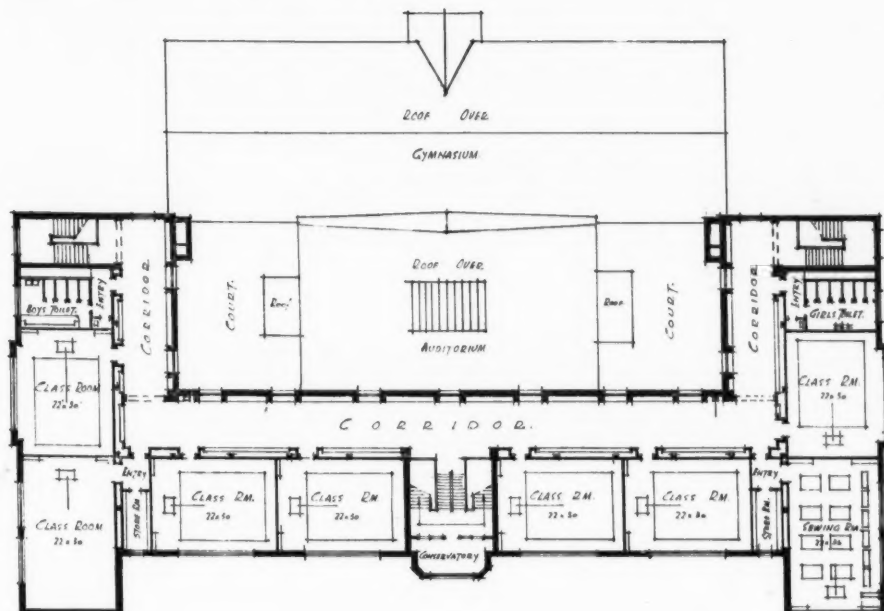
73.38 per cent; operation of plant, 15.3 per cent; general control, 4.54 per cent; maintenance of plant, 3 per cent; fixed charges, 2.06 per cent; auxiliary agencies, 1.82 per cent.

That the public-relations program of Superintendent Miller has been successful is attested by the increase of voters in school elections in the past 25 years, the period of service which he has just completed. In 1909, 272 persons voted; in 1926, after the functioning of the citizens' committee for the first time, 1,968 voted; in 1933, 3,219 cast their votes.

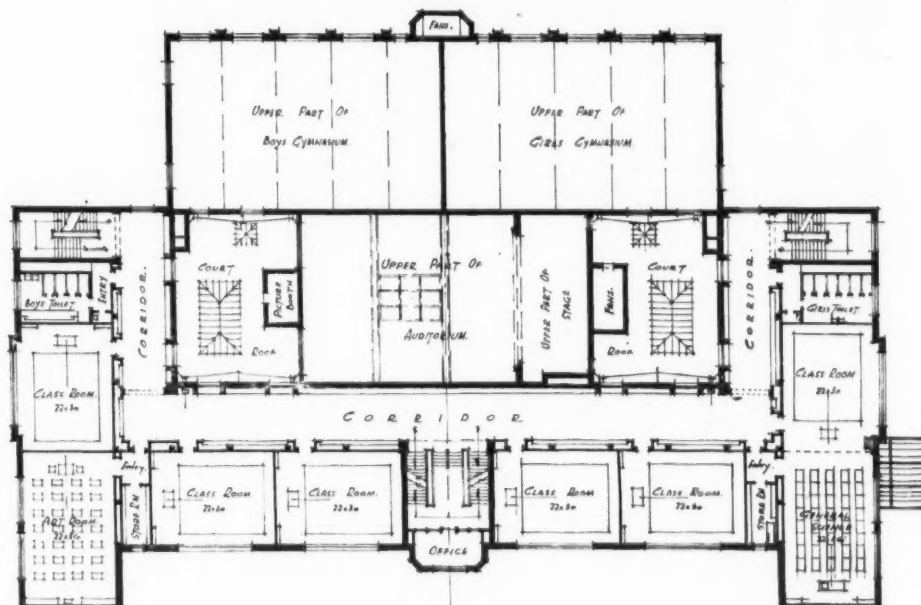
In this 25-year period, the Normandy district has grown from village district No. 2 with five small grade schools, to a large consolidated district with seven grade schools, a junior and senior high school, a large gymnasium, and an athletic field.

In 1909, the district had an assessed valuation of \$3,000,000, an enumeration of 1,599, an enrollment of 927, and a faculty of 23. Today it has an assessed valuation of \$20,000,000, an enumeration of 6,705, an enrollment of 4,311, and a faculty of 137.

That the people of the Normandy district have faith in the administration of their schools and stand willing to support them when the need is apparent, may be understood from the vote of confidence which they gave to Superintendent Miller in celebration in his honor upon the completion of his 25 years of service, on December 4, 1934.

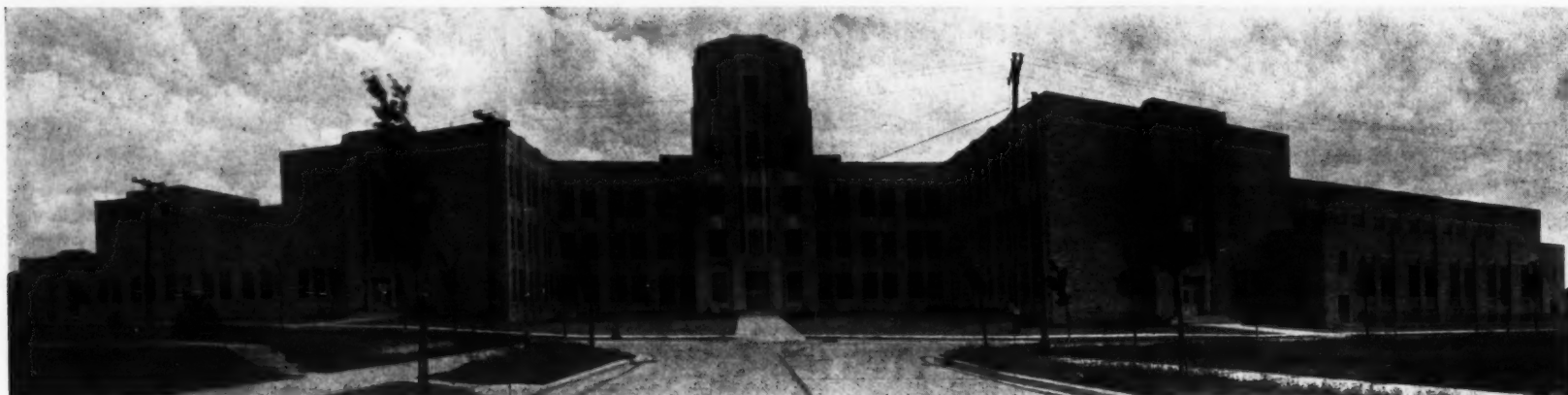


THIRD FLOOR PLAN.



SECOND FLOOR PLAN.

SECOND AND THIRD FLOOR PLANS, JUNIOR HIGH SCHOOL, NORMANDY, MISSOURI  
William B. Ittner, Architect, St. Louis, Missouri.



RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
G. E. Wiley, Architect, Architectural Division, Board of School Directors, Milwaukee, Wisconsin.

## The Rufus King High School

W. W. Theisen, Assistant Superintendent, Milwaukee Public Schools

Erected during the depression, the new Rufus King High School, of Milwaukee, is among the most recently built schools in the middle west. The school, named in honor of Milwaukee's first superintendent of schools, was built as a six-year high school to serve approximately 2,000 students. The building, opened in September, 1934, serves a relatively new section of the city, much of which only a few years ago was open country. The population of the district is typically American, the majority of whose families trace their ancestral origins to north European stock, particularly the German. Residentially, the neighborhood is made up of average, or somewhat better than average, American city homes.

The site of approximately twelve acres was chosen several years in advance of actual building construction, in accordance with a definite program of location for future buildings. While the site was originally intended as a future junior-high-school location, the unexpected increase in senior-high-school enrollments which Milwaukee, as other cities, experienced since the war, led to a modification in the original program. As a result of this unexpected development a six-year high school was decided upon by the school board, to be used as such until further growth warrants a

separate senior high school on another site selected for that purpose. It is expected that the present building will ultimately become strictly a junior high school.

In addition to the space required by the building and setting, the site provides room for a regulation football field, surrounded by a quarter-mile running track, and enclosed on three sides by a stadium seating 15,000. There is also a practice play field, a hard-surfaced playground for outdoor gymnastics, and space for future tennis courts.

### The Building

In planning the building major considerations were given to curriculum needs and possible efficiency in building utilization. Recognition was accorded to modern curriculum tendencies in the direction of increasing emphasis upon the preparation of young people for active participation in the civic, economic, and social life of the community, and to the increasing emphasis upon school activities as necessary concomitants in such a program of education. No little importance is attached in the curriculum of the Milwaukee high schools to the need for developing many-sided interests in boys and girls, and for extending their mental horizons with reference to life activities.

Such matters as preparation for the enjoyment of wholesome leisure-time activities, training for responsible citizenship, and health instruction, along with greater general cultural development, are recognized as matters of growing concern. Unfortunately, the inability of educators to predict the curriculum of the future with accuracy makes it impossible to go much further in school-building planning than to recognize present trends and to provide for flexibility in use. In preparing the educational specifications of the structure the probability that marked curriculum changes are likely to occur in the future was recognized. Efforts were made to avoid rooms so highly specialized that they could not readily be used for other purposes.

### Special Activity Rooms

Specialized activity rooms include an auditorium seating 1,250, two gymnasiums 48 ft. 6 in. by 90 ft., two music rooms, two art rooms, a cafeteria, a creative English room, three household-arts rooms, an industrial-arts unit, six commercial rooms, a library, five science rooms, and two study halls accommodating a total of 350, together with their accessories. Throughout the building special pains have been taken to provide instructional conve-



REAR VIEW AND STADIUM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
G. E. Wiley, Architect, Architectural Division, Board of School Directors, Milwaukee, Wisconsin.  
The stadium is of reinforced concrete, steel and brick, and serves a group of high schools in the northwest section of the city of Milwaukee.





LIBRARY. RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
The library is the academic center of the school. It has been designed to harmonize with the general modern design of the building. It has south exposure and ample sunlight at all hours. The floor is brown rubber tile. The furniture is light and medium brown oak, and the walls and ceilings are yellow and white. The ornamental lighting fixtures are standard fixtures to which specially designed rings and drops have been added.

niences for teachers and pupils. Lantern outlets are provided in all classrooms. Built-in cabinets which accommodate standard-sized metal filing drawers, book and supply shelves, and a generous amount of bulletin-board space were furnished for each classroom. In addition each of the various special departments has specially designed exhibition cases, student-work files, and visual-aid storage provisions. The social-science unit includes a small museum for exhibiting special displays and filing objective teaching aids.

Special attention has been given to the artificial illumination of the building with a view to meeting the requirements of the most exacting standards. Standard classrooms have six 300-watt lamps, instead of the customary lights of 200-watt strength. These fixtures have been selected with a view to preventing either glare or excessive brilliancy at any portion of the room. Artistic fixture designs have been used throughout.

#### The Auditorium and Gymnasium

The auditorium has a fully equipped stage with full gridiron, individually counterweighted drops, and preset-type switchboard, with full dimming capacity for controlling stage and house lighting. There is a projection booth for housing still and motion-picture equipment, and space for a future organ. Darkening shades are provided and the auditorium is acoustically treated throughout.

The two gymnasiums are separated by a motorized folding partition. Spectators' balconies are provided by utilizing the space above the locker rooms immediately adjoining the playing floors. The ceilings and walls are acoustically treated. The walls surrounding the playing floor to the height of the balconies are furnished in cork tile. Auxiliary rooms include two corrective exercise rooms and two small game rooms, besides apparatus storage rooms,

and locker and shower rooms. Gang showers, which may be individually operated, if desired, are provided. Danger of scalding is avoided by the use of thermostatic control valves. Electric hair dryers are furnished for girls. In addition to the usual locker and dressing rooms there are five special athletic team rooms, each with its own shower compartment and lockers for the use of home and visiting athletic teams using the stadium or gymnasiums on the same day. Provisions are made for drying and storage of athletic clothing. Team rooms are located on

the ground floor, immediately adjoining an entrance which opens directly on to the stadium playing field.

The cafeteria occupies the ground floor space beneath the gymnasiums and is large enough to accommodate 600 pupils. Kitchen noises are effectively screened off by a wall separating the kitchen and serving counter from the main dining room. The latter, which is acoustically treated, is available for use as an overflow study hall. A separate dining room for teachers is provided.



GYMNASIUM. RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
This room may be divided into two equal parts by the use of huge sliding doors which extend from floor to ceiling. When used for instructional purposes, the boys' and girls' gymnasiums are regularly separated in this fashion. The ceiling is treated with sound-absorbing materials, the wainscoting is cork tile, and the floor is small squares of hard maple. The entire interior has been treated harmoniously in buff tints and brown shades.



COMBINATION SEWING AND COOKING ROOM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN



TYPICAL ART ROOM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
Blackboard has been limited to two small swinging boards behind the teacher's desk. The majority of the wall space is used for tacking purposes.



STUDY HALL, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
These rooms are 18 feet high, lighted from two sides, and have ceilings of sound-absorbent material. They serve for study purposes and for larger group recitations.

The creative English room finished in Old English style, of rough-hewn natural oak, with beamed ceilings and Gothic windows, has a small stage at one end and an old-fashioned spectators' balcony at the other. As its name indicates, the room is intended to provide opportunity for the development of dramatic interests and talents, and for self-expression in an atmosphere which is conducive to such work.

The art rooms are designed to accommodate forty pupils each. In addition to supply and workroom space, there is a special room for firing clay projects equipped with gas-operated kiln. The rooms are generously equipped with

bulletin boards, folding-leaf blackboards, and recessed display cases.

Rooms for the teaching of commercial subjects include provision for bookkeeping, commercial geography, office practice, shorthand and typewriting, and other less specialized commercial subjects. With the exception of a single room used exclusively for typewriting, all rooms when completely furnished will be equipped with dual-purpose desks, in order that they may be used interchangeably for various class purposes. Electric power outlets are provided in the office-practice room. Rooms used for typewriting are acoustically treated.



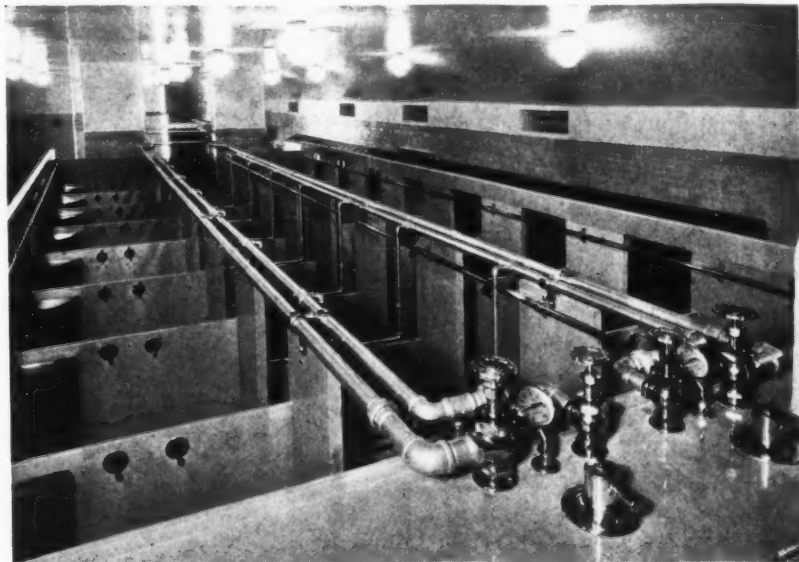
A TYPICAL MUSIC ROOM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN

The view shows the open area at the front which is used for choruses and small orchestra groups.



FOYER, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN

This room is used by visitors as well as pupils and is attractively treated to harmonize with the auditorium.



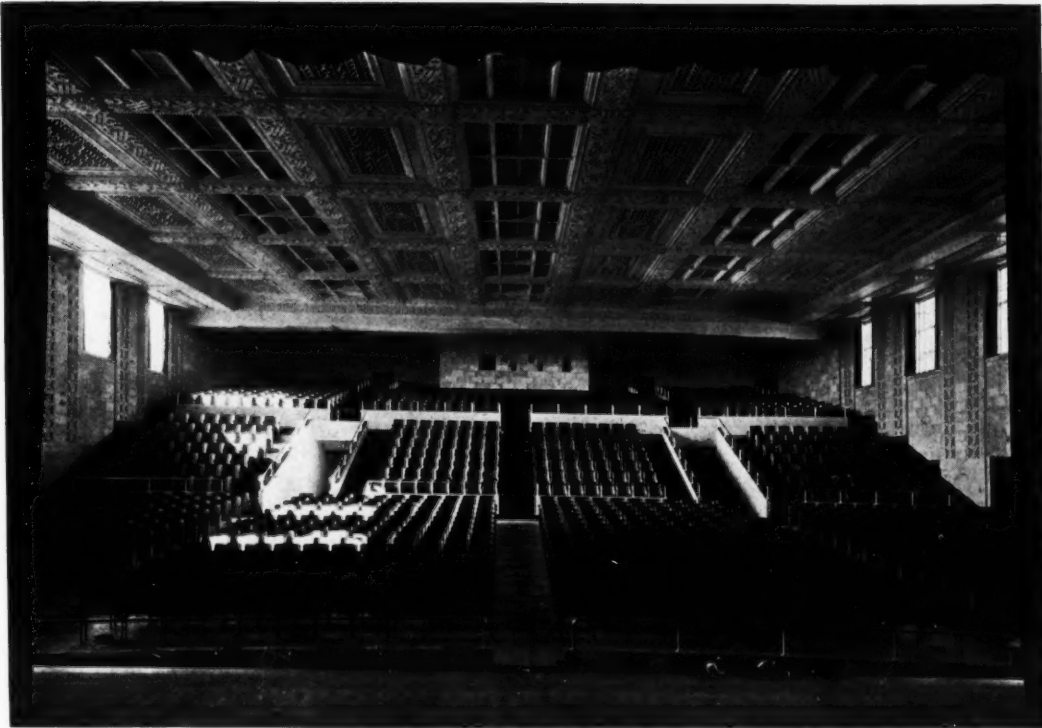
GIRLS' SHOWER ROOM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN

This shower room is so arranged that the woman teacher in charge can control all the showers and accurately manage the temperature of the water. Pupils cannot escape taking the prescribed shower.

To guard against the contingency of highly specialized rooms which cannot readily be used for other purposes, the household-arts suite was planned with one laboratory for clothing, another for foods, and a third equipped to accommodate both. This is accomplished by using a dual-purpose type of student desk with such additional space as necessary to house sinks, stoves, and sewing machines. A small homekeeping suite, inexpensively finished in aged knotty pine in natural color, completes the household-arts layout.

The industrial-arts unit occupies a floor area of approximately 7,600 square feet exclusive





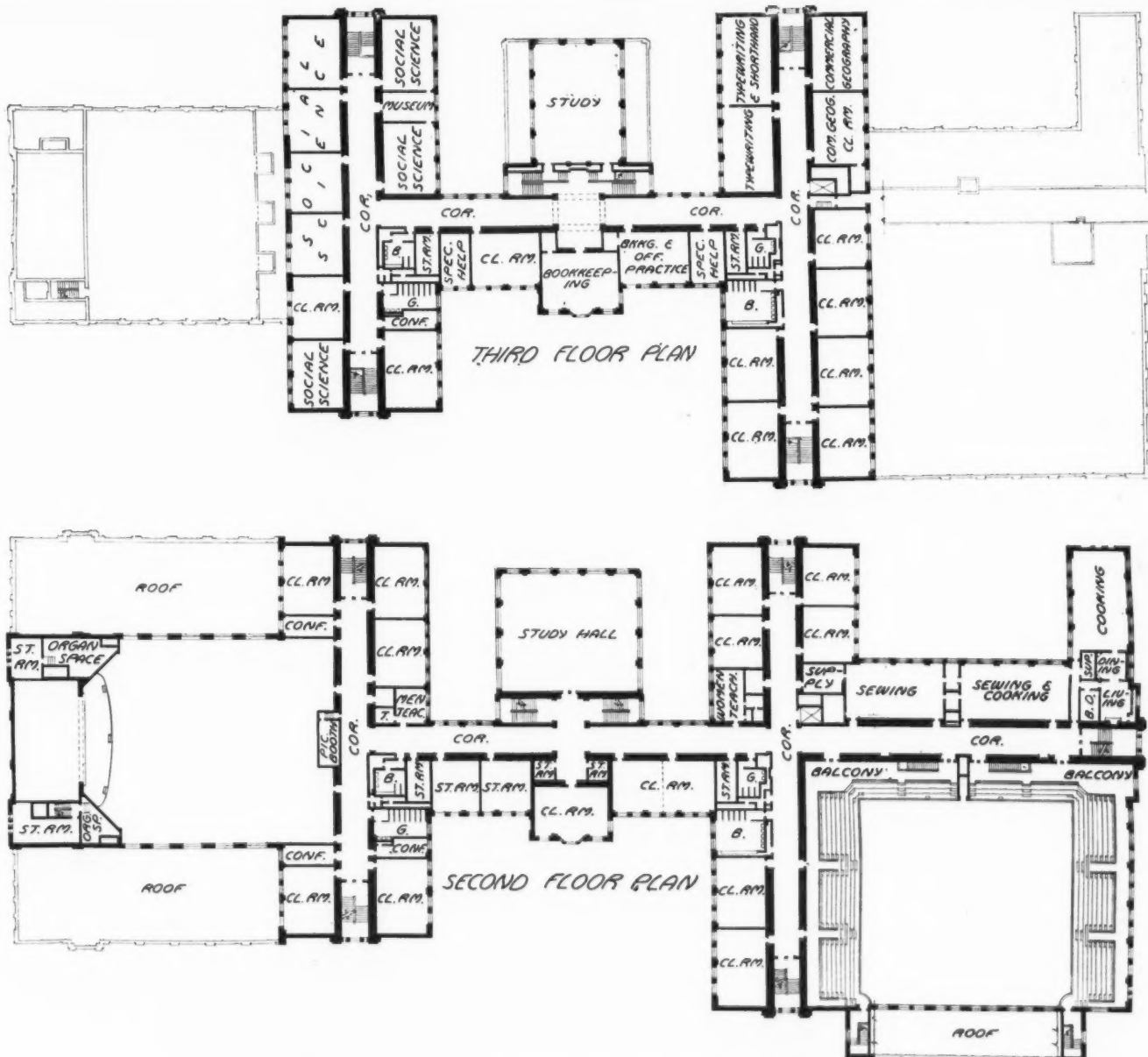
AUDITORIUM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN, AS SEEN FROM THE STAGE  
The rear of the room may be entered from either the second or the first floor. The arrangement is such that the effect of a balcony is entirely avoided and every person in the auditorium can readily see every part of the stage.

of a mechanical-drawing room 24 by 45 ft. Each shop is designed with a view to providing an abundance of opportunities for exploring the boy's vocational interests and aptitudes and is equipped to permit the teaching of at least three types of occupational activities.

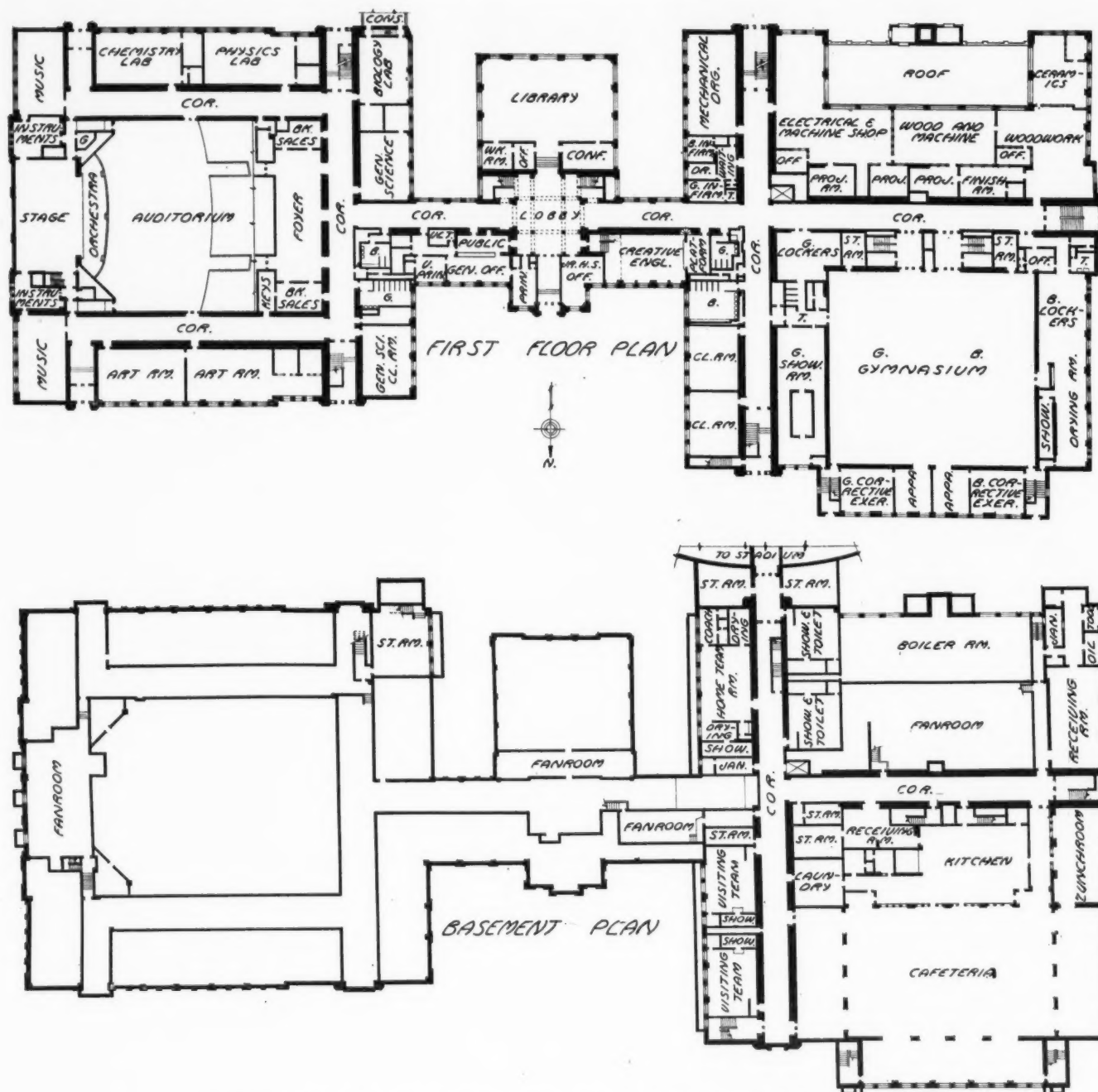
Both industrial and household-arts rooms are built to accommodate classes of forty pupils. Special storage rooms and bins are provided for housing pupil projects under construction. The music rooms and instrument-storage rooms are located at the auditorium end of the

building immediately adjoining the stage. This arrangement not only results in a minimum of disturbance of other classes, but facilitates a rapid transfer of musicians and their instruments to or from the auditorium stage. The rooms are acoustically treated and equipped with soundproof doors. Each room seats seventy in opera seats arranged on raised tiers, with an open space in the front of the room for seating band or orchestra groups.

The science rooms, two of which are intended primarily for general science and one each for biology, chemistry, and physics, are located on the ground floor. No specialized furniture other than a demonstration desk is provided for the general-science rooms, permitting the rooms to be used for overflow academic classes. The three remaining rooms are equipped with dual-purpose desks which permits them to be used interchangeably by different science groups or even for overflow academic classes. In the case of the physics room, the three rear tiers of desks are slightly elevated on risers to afford a better view of demonstrations at the front of the room. Under the arrangement and with the type of desks used in science rooms, the old-type lecture room is no longer needed and was therefore, omitted from the plans. Three darkrooms are available. Electric current of various voltages can be supplied at individual desks and elsewhere throughout the science rooms, from a central laboratory panel operated by an instructor. The biology room is equipped with individual light-socket outlets at each desk, thus making it possible for the individual student to record his observations while micro-projection work is being carried



SECOND AND THIRD FLOOR PLANS, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
G. E. Wiley, Architect, Architectural Division, Board of School Directors, Milwaukee, Wisconsin.



BASEMENT AND FIRST FLOOR PLANS, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
G. E. Wiley, Architect, Architectural Division, Board of School Directors, Milwaukee, Wisconsin.

on. Accommodations for biology also include a small conservatory and facilities for plant and soil storage. Automatically controlled electric heating is provided for the conservatory.



STAIRS IN ACADEMIC WING, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN.  
are treated with the most permanent materials. Stair treads are of non-slip alundum tile.

### The Library

The library, located on the ground floor approximately at the east-west center of the building, forms another of the attractive features of the building. The reading room has an area of approximately 2,600 square feet. It is decoratively finished and acoustically treated. The seating arrangement and location of waist-high book stacks are such that several conference or study nooks are provided, where small groups may be accommodated. Bookshelves, bookcases, and files are recessed. Special attention has been given to illumination both natural and artificial. Venetian blinds admit light at all parts of windows but eliminate direct sunlight and glare.

Nonteaching rooms not listed above include an infirmary with separate offices for the principal, vice-principal, and life-advisement director; a general office with fireproof vault, storeroom, and waiting room; two book and supply sales rooms; and a decoratively treated exhibition foyer at the entrance to the auditorium.

### Useful Administrative Devices

Other conveniences for facilitating the administrative use of the school include a supply receiving room, an automatic elevator, collapsible corridor gates to permit shutting off other parts of the building when the auditorium or gymnasiums only are in use, synchronized program clocks controlled by a master clock which automatically holds all secondary

clocks at correct time, and intercommunicating telephone and signal systems. Emergency service lights in all assembly halls and passage-

(Concluded on Page 64)



TYPICAL SHOWER ROOM, BOYS' GYMNASIUM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
The walls and ceilings are covered with nonabsorbent materials and the floor is anti-slip tile made of alundum, which is equally effective wet or dry.





FRONT VIEW, NEW YORK STREET GRADE SCHOOL BUILDING, LAWRENCE, KANSAS  
Thomas Larrick, Architect and Engineer, Lawrence, Kansas.

## The New York Street Grade-School Building Lawrence, Kansas

*Thomas Larrick, A.I.A., Lawrence, Kansas*

In the planning of elementary-school buildings, the architect has two main objectives to achieve. He must, first of all, translate into practical building accommodations the educational program of the school executives and teachers. He must do this in a manner that children and teachers will be housed comfortably and economically, and that the teaching and learning processes will go on in a most efficient way. In a secondary way, by the choice of materials and the careful design of the building, he must insure that measure of beauty which will cause the school to be respected as an important social and governmental instrumentality. Through the beauty which he builds into the school, he must enhance rather than harm the neighborhood which the building serves. The New York Street School, at Lawrence, Kansas, has been planned and built with these ideas in mind. The building has been designed in an interesting modern adaptation of the colonial style. The building is constructed of reinforced-concrete foundations and framework throughout, with the exception of the pitched roof, which is wood framing built over a reinforced-concrete ceiling slab. Spandrel beams were inverted, making the heads of all windows even with the ceiling line. The ground-floor slab is poured over a hollow-tile base, laid upon a sand cushion on grade. Pipe tun-

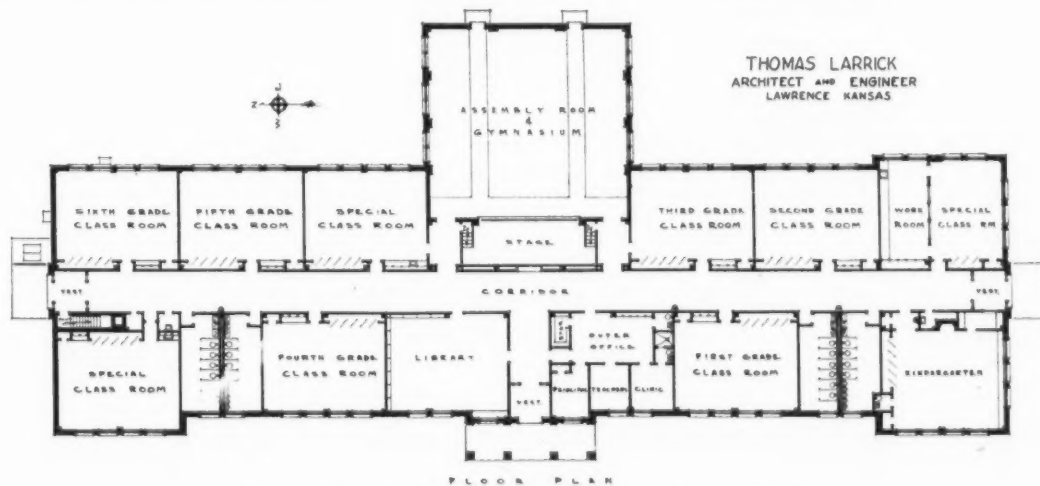
nels carry along the east and west sides of the building and under the double partitions of the toilet rooms, thus allowing access to nearly all piping and complete ventilation through the hollow tile from tunnel to tunnel.

The exterior walls are a sanded colonial face brick backed up in all cases, except in the assembly room, with interlocking hollow tile. The pitched roof is covered with asbestos shingles

of random sizes and variegated colors. The flat roof of the assembly room is tar and gravel on a concrete deck. The cupola is of frame, with copper roof and bronze finial. Flashings, gutters, downspouts, and copings are of copper. All exterior trim, double-hung windows, doors, and cupola are of white pine.

The interior walls of the assembly room are

(Concluded on Page 73)



NEW YORK STREET GRADE SCHOOL BUILDING, LAWRENCE, KANSAS  
Thomas Larrick, Architect and Engineer, Lawrence, Kansas.

# THE AMERICAN School Board Journal

EDITORS:



WM. GEO. BRUCE

WM. C. BRUCE

## *Present Conflicts and Tendencies in School Architecture*

THE problems of school architecture seem to be ever new and in their fundamental aspects ever old. The long-drawn economic depression, with its changes in the methods of financing public-school buildings, the ever-widening educational theory and the concomitant betterments in teaching practice, the new social frontiers, and the new political viewpoints all make for a necessary reconsideration of the planning and constructing of school buildings.

With city boards of education, the problem of enlarged school-building space invariably opens with the question of either choosing a local architect with little or no understanding of school organization and teaching methods and with no appreciation of school-building refinements, or of employing an experienced architect who has specialized in school planning, who can bring to his work the assurance of thorough knowledge of educational objectives and techniques, and who can accurately harmonize plan, construction, and financing. The wide acceptance of funds allotted under PWA auspices has given the local architect renewed enthusiasm to make a bid for schoolwork on the theory that the construction of new school buildings is intended to provide local work for local people. The thoroughly informed school board, on the other hand, knows that it will have greatly increased difficulties in having its plans and specifications approved by state and federal authorities unless it has the services of a thoroughly experienced school architect whose plans can be defended, whose specifications meet the federal standards for construction, and who can comply with federal methods of awarding contracts, etc. Whatever may be said, this is distinctly not the time to experiment with local talent in the selection of architects for school building construction.

The recent refinements in school organization, curricula, and instructional method have led to strongly specialized designs and plans of classrooms and other instructional units. Such planning makes for great efficiency in present instructional methods and for convenience in carrying on work in such subjects as social-science, art, science, industrial arts, music, and even language work. Whatever the present efficiency of a building with many closely designed teaching areas may be, it is certain that before many years pass the present arrangement will show up as inflexible and the excessive built-in equipment will prevent ready changes in the adjustment of space to new class organization and new types of furniture. If there has been complaint that education is changing too rapidly, this situation is likely to be made worse in years to come because the momentum of discovery in theory and practice is likely to be increased rather than slowed up. In fact, it would seem that there is need at present for greater flexibility in the arrangement of buildings for the use of the school plant by adult groups as well as by children. If the growing leisure problems are to be solved, the school may be expected to render a broader service than ever to neighborhood groups, and buildings must be more than ever useful for a variety of new and unanticipated uses. Long-term educational planning may seem to result in present waste and in excessive areas, but it seems to be inevitable that school boards must face these problems unless our new school buildings are to be scrapped within a generation.

The present controversy concerning the use of the so-called modern versus the traditional forms of architectural design is a healthy sign of growth and is only secondary in importance to that deeper conflict which is being waged concerning the use of new materials of construction and the installation of new devices for air conditioning and sanitation. Generally speaking, American architects have

been more progressive in accepting new materials of construction than they have in adopting new art forms. In schoolwork there has been even more conservatism than in domestic, industrial, and commercial work, not because school buildings have failed to lend themselves beautifully and effectively to the new architecture, but rather because the boards of education have distinctly put a damper on extreme innovations. The lag has been similar to that which occurs between teaching practice and educational theory, and the underlying reasons have been quite similar. There has been much unwillingness to experiment with public structures in which children are to be housed, and there is much old-fashioned conservatism arising out of the age, experience, and importance of the majority of school architects and school-board members. An appreciation of the facts that the new architecture is more expressive of the spirit of the new school, that the new design is quite as economical as the traditional in first cost and upkeep, and that it will ensure the use of the more desirable new materials, should at least give the modernistic architecture a hearing.

The suggestion that school buildings be designed and constructed to last only a generation has been given practically no serious consideration in spite of the fact that such a policy in the minds of some observers would permit of lower first costs, and would make possible the reconstruction of the school plant and the complete readjustment of buildings, sites, etc., to the changed instructional needs and population conditions. Why tradition should bear down so heavily in favor of permanence and large first costs is difficult to understand except that previous efforts to reduce costs and to build for a comparatively short span of years have resulted in shoddy and sometimes unsafe buildings. The recent legislation in California which requires extraordinary strength and permanence in buildings is indicative of a general tendency, and not altogether reasonable from the standpoint of adaptability of plant to school processes.

There are rumblings abroad of a new attitude on school-plant planning, an attitude which sees the problem of the location and planning of buildings as a part of the larger problem of state planning for greater efficiency in administrative units and attendance districts. If the Federal Government should adopt a ten- or twenty-five-year plan for the reconstruction of governmental units and for the reform of public-administrative bodies, then education will necessarily receive major attention. The outworn district system and the rapidly obsolescing county organization will come in for early study and for great changes. This will inevitably mean the entire revamping of the school plant, and the relocation of buildings on lines set by natural community needs. It should mean a new efficiency and a bigger realization of the service which a school building gives to a school. But it should not delay any meeting of present needs of growing children or growing populations. Rather it should mean closer study of all factors of location, plan, and construction. The new conflicts in school architecture are an opportunity for wise administration on the part of school boards and superintendents.

## *Awarding Contracts to Lowest Bidder*

THE rule of awarding contracts to the lowest bidder, backed up by state laws and municipal ordinances, is frequently subjected to exceptions. The intent is that only the lowest responsible bidder be recognized. When the contractor is apparently not financially responsible, this consideration is frequently met by the fact that the successful bidder is obliged to provide a bond assuring the faithful fulfillment of the contract.

Experience has proved that, in case of failure to comply with the conditions of contract, the situation is not always a pleasant one to contemplate. True, the bond impliedly protects the awarding factors against losses, but it does not protect them from the annoyance of vexatious delay and trouble. There is the contractor who recklessly enters a competition, submits the lowest figure, and then finds that he lacks the necessary equipment, capital, or credit to complete the job.

The bonding company must be asked to step in and pay the difference between the lowest and next highest bid. This entails a series of conferences and negotiations. The representative of the bonding com-



pany must be convinced that his company is responsible. At any rate, someone must complete the contract and someone must pay for the service rendered.

A board of education in Minnesota was criticized, in a report recently made by a state examiner, for failure to award contracts to the lowest bidder. "In none of these cases," the report said, "was the reliability or integrity of the lowest bidders questioned, and their bids were according to the specifications and requirements. In all cases awarding of contracts to the lowest bidder was recommended by the city purchasing agent.

"The awarding of contracts to other than the lowest bidder, except when the quality of the material or service is questioned or the financial responsibility of the bidder doubtful, is contrary to the letter and spirit of the ordinance creating the purchasing department, said ordinance having been accepted by the board."

It is not within our province to determine whether the board of education in this instance complied strictly with the letter and spirit of the law. A contract may be awarded to the lowest responsible bidder without announcing openly that this or that contractor who is the actual lowest bidder, is irresponsible. Knowledge may be in possession of those who award the contract, which cannot wisely be made public.

In another city a damage suit was begun against the public authorities by a contractor deemed irresponsible, who had failed to secure a contract although his bid was lowest. This compelled the authorities to reveal information which proved highly discreditable to the contractor and who then eliminated himself from the scene.

The question involved in the award of contracts resolves itself into the subservance of the interest in hand. There are two kinds of contractors, the one who aims to perform an honest job, and also the one who will "skin" a job, if he believes it will not be discovered before he has collected his pay. Those intrusted with the awarding of contracts have found it advantageous to take into consideration the character of the contractor and his ability to complete his contract in a satisfactory manner.

### ***Arousing Public Sentiment in Behalf of School Interests***

THE average American community supports the schools in a matter-of-fact manner and raises no question on what may be regarded as their just share out of the public treasury. Popular education is regarded as an essential part of our plan of government and in the maintenance of the social order.

Instances may arise, however, when and where public sentiment in its relation to the schools is put to the test. At a time when the almighty dollar is harder to get and men are more cautious in expending the same, it follows that the management of the schools comes under closer scrutiny.

In the selection of members of boards of education, greater discrimination is manifested. Two types of candidates are likely to present themselves for recognition. The one has selfish motives while the other comes forward in a spirit of unselfish and patriotic service. In the smaller communities where the elective system prevails, the choice is more readily made than it is in the larger centers of population. Here the citizen who wishes to cast his vote for the best candidate must look for information and guidance. Here, too, a citizens' committee and a helpful public press are needed. Such citizen's committee, if constituted of men and women of high character, well-informed, sincere in motive, and fair in judgment, may render a most valuable service.

Five years ago, the city of Indianapolis was confronted with the problem of ridding itself of a board of education that did not measure up to accepted standards. A citizens' committee went into action. It lifted out of the citizenship a group of candidates and presented them to the public for board-of-education service that in point of character and ability could not be questioned. The press approved and the public ratified the choice.

At the end of five years' service, the board of education is once more brought face to face with the public in an election. Once more a citizens' committee functioned. The result was that it was most

gratifying. The Indianapolis *News*, under the heading of "A School Victory," submitted the following editorial comment:

The vigor and determination with which the people rallied to the support of the Citizens' School Committee ticket testifies again to several facts of importance to the spirit of Indianapolis. First, of course, is the deep interest of the people in the welfare of their children. With schools removed from the blighting influence of partisan politicians and directed by educators, the people asserted their determination to construct the future on the best traditions of the best.

The committee and its nominees demonstrated again that when a definite issue is at stake, and a resolute and fully competent group of citizens takes the lead for the right, the people will respond in the same spirit. . . . Finally, the five candidates elected can take satisfaction in the confidence reposed in them by the friends of a good school system, and assume the duties of the office with a feeling that their records as citizens have been approved and rewarded with a trust second to none in its possibilities of civic service.

The plan inaugurated by the city of Indianapolis in assuring itself of a high-class and efficient board of education is worthy of consideration by other large centers of population where the election system prevails.

### ***The Public Schools and Politics***

FROM time to time, the complaint is uttered that the efficient operation of the schools is interfered with by the injection of politics. Just what is meant by politics is not always clear. At any rate, whenever a board of education in the performance of its task yields to the gratification of self-interest, the cry of politics is sounded and selfish action thus expressed is properly rebuked. The professional workers have stood out against the mixing of politics and education, and have again and again sounded the note of alarm when things appeared to be going wrong.

It would, therefore, seem that the professional workers themselves would be the last to violate their own precepts. And yet in at least two states, educational bodies are urging active interest in the nomination and election of the members of state legislatures. The purpose here is to insure legislation that may provide adequate school support. The wisdom of this approach may be seriously questioned.

In the city of New Bedford, Massachusetts, two teachers' organizations have announced their intention of nominating and electing the members of the local board of education. The *Standard-Times* of that city, seriously questioning the propriety of seeking to select those who are in a sense their employers, says the following:

For the most part the teachers are citizens of New Bedford. As such it is their right and duty to take an interest in civic affairs, and to promote the cause of good government. Considering their qualifications, to bar them from using their influence as citizens would mean a civic loss. But when their organizations place a school committee ticket in the field, and virtually constitute themselves a political party to elect that ticket, it is a question whether the permissible limits of political action are not exceeded. The school committee administers the schools, spends the taxpayers' money, employs teachers and fixes their pay, and any situation in which its members might feel they owed their places to the teachers is gravely disquieting, to say the least.

To enter actively into a political campaign will mean to champion the cause of certain candidates and to oppose others. If the trend of things were all one way, no embarrassments would arise. But public opinion is likely to be divided. The candidate who is most vigorously opposed is sometimes elected. The teacher who has openly sought to defeat a candidate for the school board, will stand in an awkward relationship if that candidate happens to win an election. The spirit of retaliation may assert itself; a bad situation will certainly ensue.

There is no doubt that all public servants are subjected to closer scrutiny than ever before. The board of education is not exempt from that scrutiny. Its rulings may have displeased a taxpaying constituency. It may have run counter to what the professional workers believe to be right.

The general public must exercise its judgment as to the selection of those who shall govern the schools. The members of the teaching profession, constituting a part of the general public, have a voice in the selection of the citizens who shall serve as members of the board of education. To organize themselves into a political body is inconsistent with their professional calling, and to seek to control the selection of those who are to be their employees is illogical and untenable.

# California Spends Millions to "Earthquake-Proof" School Buildings

California is becoming earthquake-conscious and with that consciousness has come a resolute determination to erect buildings that will be "earthquake-proof." The result is that the Golden State is now engaged in the largest program of school reconstruction that has ever been known in the West in a genuine attempt to make every school safe from the most severe temblor.

Time was in California when the word *earthquake* was taboo. The San Francisco earthquake of 1906 was referred to as "the fire," and in Los Angeles and its environs, the yea-brother type of horseshoe-pitching realtor would raise his eyes in awe at the mention of the word *earthquake*. But all that has been changed.

"California is an earthquake area," says the *Berkeley Gazette* editorially. "Only a false sense of state pride coupled with an overdeveloped promotion complex has led us to deny or disregard the truth. Other regions of the country face equal or greater menaces than earthquakes, and those that are wise build their homes and schools to withstand these natural menaces. California is NOT endangered by tornadoes nor tidal waves, but we do have earthquakes and we should cease our ostrichlike evasion of the fact. Nor will the fact that California shimmies violently on occasions deter tourists from visiting here, nor prevent retired Iowa farmers from settling here."

## The State Legislature Acts

This change of front on the part of Californians came in the wake of an earthquake, which rocked southern California on March 10, 1933, because two comparatively new school buildings in the Long Beach area were reduced to shambles by the shock which occurred late in the afternoon. Had the earthquake struck just a short hour before it did, the buildings would have fallen on 2,000 children in their classes. Photographs of the ruined buildings circulated throughout the state brought to the mind of every parent in California, the



WHAT HAPPENED IN THE EARTHQUAKE WHERE BRICK AND TILE CONSTRUCTION WAS IMPROPERLY SAFEGUARDED AGAINST LATERAL MOVEMENT

horror of what might have been the most disastrous school calamity in the history of the state.

Within two weeks there was approved by both houses of the California legislature a bill known

as the Field Act, setting up standards affecting all school buildings within the state, then standing and in use, providing the schools were in known earthquake areas. The bill was signed by the governor, the late James Rolph. The stringent provisions of the new law imposed upon school-board members personal responsibility for injuries which might be incurred by a child as a result of damage from an earthquake.

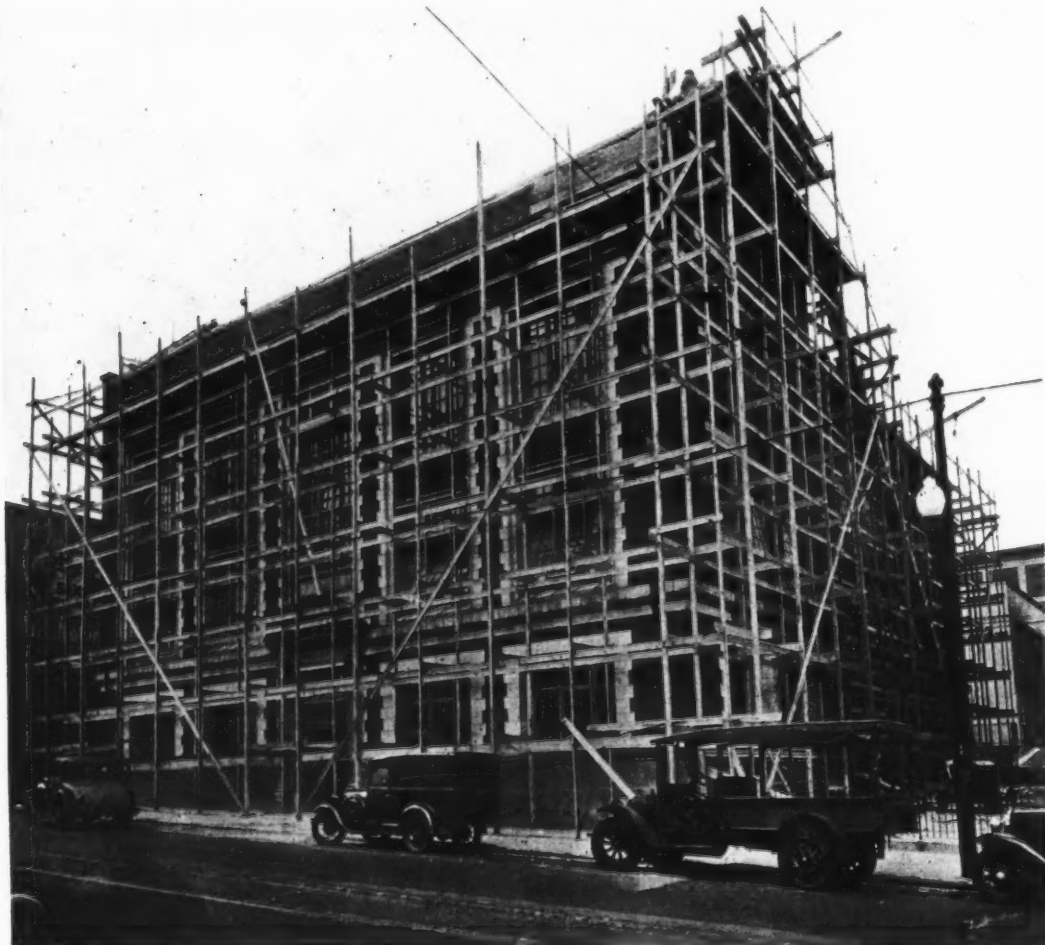
Before the ink was dry on the signatures making the Field Act law, eminent engineers throughout the state went into a "huddle" to study its mandatory provisions. The new bill was found to permit standards far beyond the then existing building laws governing the erection of schools, or local building standards in the several metropolitan centers of the state. The state department of architecture proclaimed the new standards permitted by the Field Act, and members of boards of education faced the immediate alternative of compliance or the consequences of negligence implied by failure to comply with the law.

## Schoolmen Object to Drastic Action

State Superintendent of Schools Vierling Kersey felt the full force of the new law in February, 1934, when he declared that: "a drastic 'earthquake-proof' school-building act, passed by the 1933 legislature, is forcing heavy expenditures of doubtful necessity on some California school districts. So stringent are the requirements of the new law that it invites exploitation. Building material and insurance concerns have been very active. They have found a fertile field for new business."

Mr. Kersey made a determined effort to have school districts "remotely removed from earthquake fault lines" exempt from the provisions of the act. The law was discussed by the state board of education but no opportunity existed for modification until the January, 1935, session of the legislature. The state superintendent made it clear that the modification he was urging did not threaten the safety of school children but sought to halt a hardship being worked upon school districts

(Continued on Page 59)



THE ADAMS ELEMENTARY SCHOOL, SAN FRANCISCO, UNDERGOING REPAIRS TO MAKE IT CONFORM TO A NEW CALIFORNIA STATE LAW PROVIDING FOR STRENGTHENING ALL PUBLIC SCHOOL BUILDINGS WHICH FALL BELOW NEW HIGH STANDARDS



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## The Department of Superintendence Meets at Atlantic City

President E. E. Oberholtzer, of the Department of Superintendence, plans for the sixty-fifth annual convention at Atlantic City, February 23-28, a program which includes special features of content and method of presentation. Of particular interest to those who celebrate the 300th anniversary of the American high school will be a joint meeting of the Department of Superintendence with the Department of Secondary-School Principals. On the general session program which these departments will devote to the tercentenary, C. H. Judd, Director of the School of Education, University of Chicago, will outline *The Historical Development of Secondary Education in America*; State Superintendent Sidney B. Hall, of Virginia, is scheduled to speak on *The Financial Policies Which Must Be Worked Out For Secondary Education*, and the session will be closed by George F. Zook, President of the American Council on Education, in an address entitled *The Public and the Program of Secondary Education*. Various afternoon group meetings will also discuss the rapid advance of the American high school from April 16, 1635, when the freemen of Boston resolved that "Our brother Philemon Pormont shall be entreated to become schoolmaster for the teaching and nurturing of the children with us," to the present day when six million young people in secondary schools of the nation challenge the teaching profession to a high order of service.

Following the precedent set by the Department last year, all delegates to the convention will come prepared to participate in its discussions. The principle of informality will be extended to some of the general sessions themselves. One of the high spots of the meeting will be the panel discussion of the issues raised in the 1935 Yearbook, *Education for New Social and Economic Relationships*. The members of the Yearbook Commission will constitute this panel, which is the first attempt of the Department to illustrate the play of thought and difference of opinion that attend the preparation of this annual volume. Such a presentation is of especial interest this year because of the controversial nature of the Yearbook topics such as: *Technological Changes Ahead; Individualistic versus*

*Collective Social Planning; What Lies Ahead in Government, and The Relationship of the Teaching Profession to Social Policy*. The United States Commissioner of Education, J. W. Studebaker, who heads the commission, will act as moderator of the panel. Those who will participate in the line-up are:

Frank W. Ballou, Superintendent of Schools, Washington, D. C.

Lyman Bryson, Visiting Professor of Education, Teachers College, Columbia University, New York, N. Y.

John L. Childs, Assistant Professor, Department of Philosophy of Education, Teachers College, Columbia University, New York, N. Y.

Frederick S. Deibler, Professor of Economics, Northwestern University, Evanston, Ill.

J. B. Edmonson, Dean, School of Education, University of Michigan, Ann Arbor, Mich.

Fred J. Kelly, Chief, Division of Higher Education, United States Office of Education, Washington, D. C.

Worth McClure, Superintendent of Schools, Seattle, Wash.

Jesse H. Newlon, Director, Lincoln School, Teachers College, Columbia University, New York, N. Y.

W. W. Theisen, Assistant Superintendent of Schools, Milwaukee, Wis.

Carroll H. Wooddy, Adult Forum Leader, Department of Adult Education, Public Schools, Des Moines, Iowa.

The panel debate will close with an opportunity for comment from the floor.

While general participation will be limited in general sessions, all members may take part Monday and Wednesday afternoons when forum-discussion groups will be held. The leaders of these groups and their respective topics are:

"The Support and Control of Public Education in a Democracy"—David E. Weglein, Superintendent of Schools, Baltimore, Md. "Personnel Problems in Educational Administration"—Carroll R. Reed, Superintendent of Schools, Minneapolis, Minn. "Administrative Problems"—George C. Bush, Superintendent

of Schools, South Pasadena, Calif. "The Outlook for New Educational Programs with Special Emphasis on Social-economic Phases"—A. J. Stoddard, Superintendent of Schools, Providence, R. I. "Curriculum Trends and Controversies"—H. B. Bruner, Professor of Education, Teachers College, Columbia University, New York, N. Y.

As a variation of the forum-discussion method, a series of meetings on Tuesday afternoon called study-discussion groups will be held. The entire convention will divide into 25 or 30 sections, organized on the basis of the interest shown in the questions considered in the general forum-discussion groups on Monday.

In the development of the general session programs, President Oberholtzer is endeavoring to set a new high standard of excellence. Prominent members of the administration in Washington and leaders from industry and business throughout the nation, are being invited to address the convention-at-large on subjects of pressing importance at the present time. No general theme for the meeting has been selected. The program will be comprehensive enough to cover the most essential aspects of present educational problems.

Wednesday, February 27, has been designated Principals' and Supervisors' Day. Speakers on the programs will face each other in panel formation. This feature will be directed by J. Cayce Morrison, Assistant Commissioner for Elementary Education, State Education Department, Albany, N. Y., and President M. Emma Brookes of the Department of Elementary-School Principals.

Two afternoon meetings will be devoted to school publicity. These sessions will be of interest to those who contact the public through newspaper, radio, home visiting, and other channels of school public relations.

Exhibits at the Atlantic City convention will be located in the great arena of the Auditorium. Those who have attended recent conventions of the Department of Superintendence and the National Education Association at Atlantic City will recall the splendid facilities which this space provides. Unbroken by posts or pillars is a great unobstructed area beneath an arched ceiling 135 feet high. Delegates may step into the hall from the Boardwalk entrance of the building. Registration and similar convention services will be centrally located within the exhibit, an arrangement convenient to visitors and exhibitors alike. Publishers and manufacturers of school supplies and equipment are showing a keen interest and the number of participants may be the largest for several years.



# 81 REASONS\* WHY INTERNATIONAL EQUIPMENT LEADS

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Baltimore, Md.  
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Chicago, Ill.  
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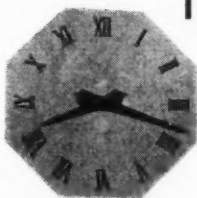
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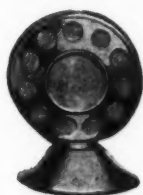


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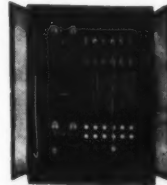


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#### NEW BOOKS

##### Extra Costs and Incidental Costs in the Erection of School Buildings

By Frank M. Misner, Ph.D. Cloth cover, 79 pages. Price, \$1.50. Published by Teachers College, Columbia University, New York City.

This volume sets forth the precautionary steps that must be taken in order to obviate troublesome "extras" in the construction of school building. The author makes plain what is meant by incidental costs, namely, costs which do not go into the actual construction in contradistinction of extra costs which were overlooked in the original planning of the structure.

In planning a new schoolhouse and in fixing the sum exacted in a bond issue and to be invested, the incidental costs that go with the project are not always foreseen. Nor do those who have a building project in hand contemplate all the factors that arise before actual completion. Thus, it has frequently been found that in the course of construction items of importance have been omitted.

It is here admitted that a building project is not an everyday or current affair and that it is not ordinarily within the province of those having such projects in hand to anticipate all the possible or probable incidentals or extras which may come to the surface. The author comes forward with a list of items which are usually overlooked. He points to 58 projects, in which from 0.40 to 11.20 per cent of the total trailed in as costs exceeding the original contracts.

It is also demonstrated that extra costs involve losses. The most promising methods to prevent such losses is to specify exactly the amount of work and materials and to determine clearly whether the funds are sufficient to include this or that addition. Such a procedure, the author holds, gives to the board of education all the advantages of open market bidding and at the same time flexibility as to planning. The book provides a complete check list of expenses incidental to the erection of a school building. These contemplate the cost of bond issues, educational consultant service, purchase of site, improvement of site, architectural and supervisory service, equipment and incidentals.

At a time when school authorities must get the largest measure of service out of the dollar, this book fills a gap in the literature now dealing with school architecture and the wise and economic planning of school structures.

##### Solid Geometry

By Elizabeth Buchanan Cowley, Ph.D., 239 pages, illustrated. \$1.28. Silver, Burdett and Company, New York, N. Y.

The traditional divisions of solid geometry are followed in this book and careful attention is given to link the material with other school subjects wherever possible. At the end of each chapter there is a list of graded and optional review exercises. Reference material, including logarithms, table of powers and roots, formulas, etc., is found at the end of the book. The illustrations are so constructed as to aid visualization of geometric solids on a plane. The style is simple and clear.

##### Story Pictures of Farm Animals

By John Y. Beaty. Cloth, 155 pages, illustrated. 70 cents. Beckley-Cardy Company, Chicago, Ill.

This supplementary book provides a farm unit in the social-studies curriculum for the primary grades. The habits, food, and shelter of farm animals are explained. The vocabulary contains 639 different words. The photographic illustrations are well chosen and will delight both the farm and city child.

##### To Have and To Hold

By Mary Johnston. Edited by Grace Shuip. Cloth, 433 pages. 92 cents. Houghton-Mifflin Co., Boston, Mass.

This well-known historical novel is a welcome addition to the Riverside Literature Series. It has been carefully edited for class use in high schools.

##### The World's Messenger

By H. H. Webster. Cloth, 352 pages, illustrated. Houghton-Mifflin Company, Boston, Mass.

The purpose of this book is to acquaint children with the various methods of communication, the great inventors, and the interdependence and the desirability of friendly relations between nations. The volume, which is adapted to supplement the upper elementary grades in geography and history, is well balanced and full of interest. The clever illustrations depict both the old and new forms of communication.

##### The Commodities of Commerce

By J. Henry Vanstone. Cloth, 202 pages. Price, \$1.75. Pitman Publishing Corporation, New York City.

This book is intended to familiarize the student with the principal commodities which enter into trade relations. The text concerns itself with the products of the mineral world, the vegetable and animal kingdoms.

Thus, studies are provided on the various carbona-

ceous minerals, including diamonds, graphite, coal, petroleum, paraffin, amber, asphalt, sulphur, gypsum, salt, borax, alum, nitrates, phosphates, talc, mica, asbestos, etc. The several metals, such as gold, silver, platinum, mercury, copper, tin, lead, zinc, iron, nickel, and aluminum, are likewise dealt with. Equal attention is given to plant and animal products.

The author here brings a vast fund of information to his service. An index enumerates the several products and enables the student to readily turn to any page in which the product is discussed.

##### Growth of the American People

By Marcus W. Jernegan, Harry E. Carlson, and A. Clayton Ross. Cloth, 861 pages. \$1.96. Longmans, Green and Company, New York City.

This textbook in American history for the senior high school shows how almost every period and development in our history can be made to throw light upon present-day problems. The authors have attempted to analyze the various periods and movements and to interpret their meaning for the pupil, believing that the study of history should be an exercise in thinking rather than in memorizing facts.

There is a combination of the unit method with the chronological narration method. The whole history of the United States is covered from the beginnings in Europe to the last unit on the The New Deal down to March, 1934. Each unit is followed by references, and questions, and suggestions for problems, floor talks, projects, debates, etc.

##### Shakespeare's Macbeth

Ed. by Harold T. Eaton. Cloth, 237 pages, illustrated. 64 cents. D. C. Heath and Company, Boston, Mass.

This edition presents a very complete background for the study of the play, including a brief summary of the political and literary history of the times, a picture of life and customs, a description of the Shakespearean theater, etc. The text is freely supplied with footnotes. "The Story of Macbeth" from Lamb's *Tales from Shakespeare* is reproduced. There are a teacher's outline of assignments, questions, an analysis of the play, a bibliography, and various other helps. But the text is not expurgated.

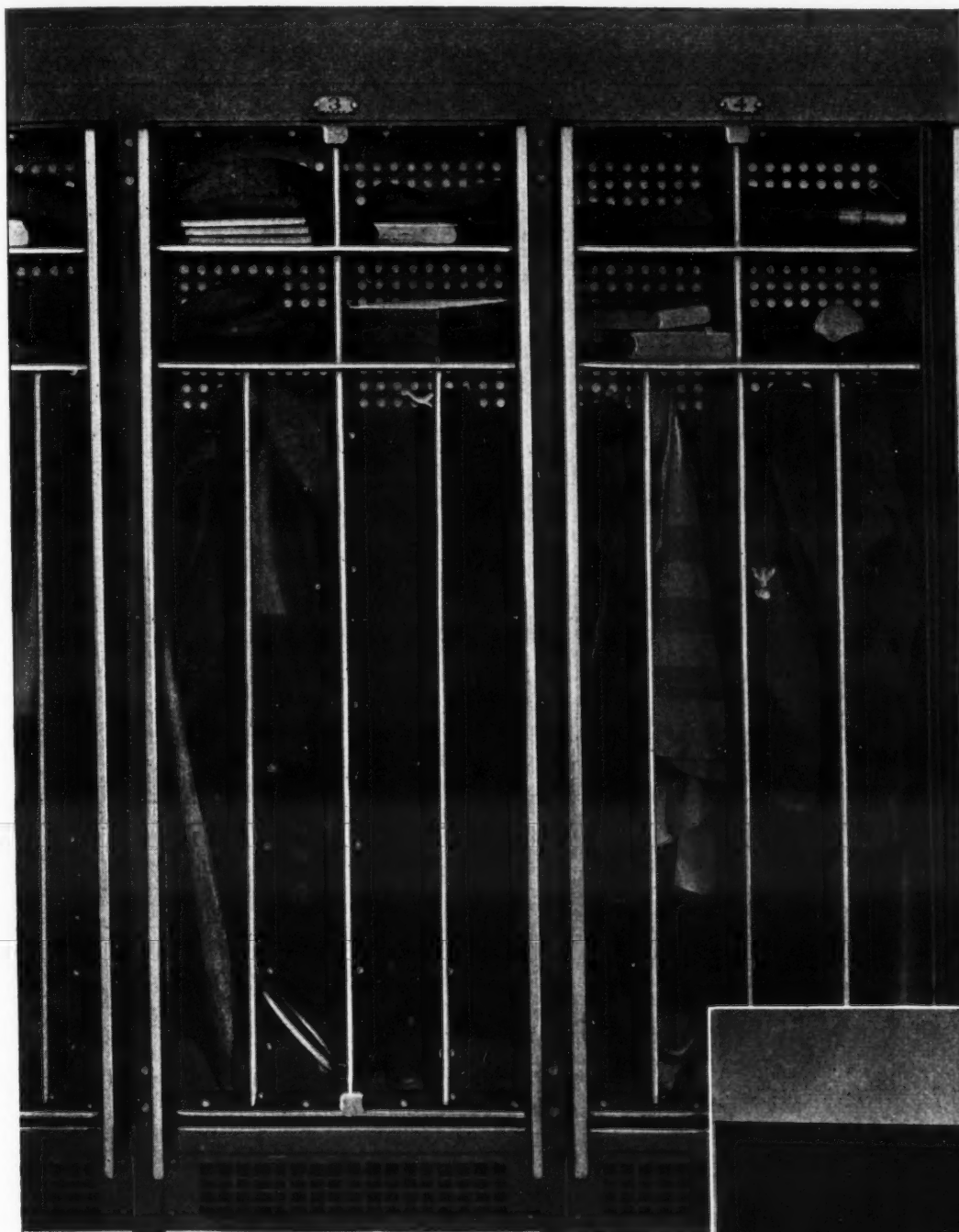
##### A Directory of Organizations in the Field of Public Administration

Compiled by Louis Brownlow, director. Paper cover, 175 pages. \$1. Published by Public Administration Clearing House, Chicago, Ill.

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knowledge and experience useful to public administration." It lists the names of some 500 national organizations arranged in alphabetical order. A list of state organizations is also provided.

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### A Manual of Commercial Law

By Edward W. Spencer. Cloth, 736 pages. Published by The Bobbs-Merrill Company, Indianapolis, Ind.

The first edition of this book was published in 1898. The present volume constitutes the fourth edition. We can well imagine that the book would have lasting value. The author is a descendant of the famous Spencer family that has been identified with business colleges for over a half century and possesses an intimate knowledge of commercial education. He is a practicing lawyer and at the same time at the head of a commercial school.

The new edition, which is before us, excels at once in its comprehensiveness and completeness. The author has classified the several phases of commercial law into some fifty-odd chapters, thus rendering readily accessible every legal consideration likely to arise in the transaction of business. This feature renders the work not only serviceable as a textbook on the subject but as a ready reference book as well.

The book is amply supplied with forms, an illuminating glossary, and a complete index.

### Sound

By Harvey B. Lemon and H. I. Schlesinger. Paper, 40 pages. University of Chicago Press, Chicago, Ill.

This is an introductory study of the physics of sound and is intended especially for study in connection with a motion picture on sound waves and acoustics. It will be found equally valuable in physics classes and in music groups.

### PUBLICATIONS

#### Space Requirements for the Children's Playgrounds

Prepared by George D. Butler. Paper, 24 pages. Price, 40 cents. Published by The National Recreation Association, 315 Fourth Ave., New York City.

The amount of space and the character of the development for the whole range of recreation activities continue to be a much-debated subject, due to changes in standards and activities, and new developments in planning, hours of labor, and transportation.

The present booklet comprises a suggested standard based upon the space required for the facilities, apparatus, and game areas which are essential to a well-balanced playground program.

The study has been limited to requirements for children's playgrounds, and use has been made of practical experience in a wide variety of situations over a considerable period of time. The results of land planning and housing studies have also been considered. Density and character of population, percentage of attendance, and efficiency of administration are factors which must be studied to predicate recreation-space needs for general application.

The schedule offers space requirements for playground apparatus, for physical education in a six-grade school and in an eight-grade school, requirements for equipment and game spaces, for games and sports, and service and space areas for various sections of the playground. A section of the report is given to a comparison of space requirements for standard, limited, and large playgrounds.

#### Economies Through the Elimination of Very Small Schools

By W. H. Gaumnitz. Paper, 54 pages. Price, 10 cents. Bulletin No. 3, 1934, U. S. Office of Education, Washington, D. C.

The problem in connection with the abandonment of small schools and of finding other means of educating the children living in the districts affected, are as far-reaching as they are complicated. In this booklet, the author presents data that will help schoolmen to realize more fully how prevalent and widespread the small-school problem is. Simply as illustrations of conditions in the western states, he shows that in Nevada, 53 per cent of the one-room rural schools have enrollments ranging from 3 to 6 children and cost from \$365 to \$213 per pupil.

The study brings prominently to the fore the whole problem of maintaining small schools and the means for stimulating and guiding further study and experimentation looking toward more economical and more educationally desirable practices. The present state laws make it impossible to escape the maintenance of very small schools, no matter how expensive they may be to operate.

#### The Disposition of School-Bond Issues and Special Levies in Ohio Cities and Exempted Villages for November, 1934

Compiled by T. C. Holy. Issued by the Bureau of Educational Research, Ohio State University, Columbus.

A report on a summary of special levies, showing the number of levies, the number which carried or failed, the per cent of the total number of issues carried, and the range of percentages of votes favoring issues which failed. The levies were carried in a total of 39 cities.

#### Data on Tuition Pupils and Monthly Tuition Rates in Ohio Cities and Villages for 1934-35

Compiled by T. C. Holy. Issued by the Bureau of Research, Ohio State University, Columbus. The study covers 109 cities and the data was supplied for elementary-, junior-high-school, and senior-high-school students. In the elementary schools, the tuition rates ranged from \$2.80 to \$16; in the junior high school, from \$3.50 to \$16; and in the senior high school, from \$6.60 to \$20.

#### School Organization

Vol. IV, No. 4, Review of Educational Research. A complete statement of a particular field of school organization. It takes up in part the units of organization, the structural organization of the American school system, the integral organization of school divisions, and the organization of administrative activity.

#### High School English Practice — Book Two

By Margaret Gillum and Blanche Wellons. 122 pages. Price, 40 cents. The Macmillan Company, New York City.

This is a workbook of the familiar type. It includes an interesting mechanical improvement in the nature of a reference sheet and key which remains a part of the book even after the exercises have been completed and the test leaves have been detached. The book is intended not only to help students master certain essentials of correct speaking and writing, but also to acquire and utilize the habit of appraisal as a means of self-improvement.

#### Statistics of State School Systems, 1931-32

Chapter I of the Biennial Survey of Education for 1930-1932. Prepared by E. M. Foster, D. T. Blose, and W. S. Deffenbaugh. Price, 10 cents. Bulletin No. 2, 1933, of the U. S. Office of Education, Washington, D. C.

The data presented in this report relates chiefly to the public elementary and secondary schools. It includes information on enrollment and daily attendance, administration, instruction and personnel, financial support, educational expenditures, school property, school debt, pupil-teacher ratio, school buildings and related items, and effects of the economic situation upon the schools.

The report shows that the total enrollment in the schools during the year 1931-32 was 26,275,441, of whom 13,337,769 were boys, and 12,937,672 were girls. Approximately 21.1 per cent of the total population of continental United States is enrolled in public elementary and secondary schools, and the ratio of enrollment to population from 5 to 17 years of age is 82. The per cent of the total population enrolled in public schools increased from 20.9 in 1928-30 to 21.1 in 1931-32, and the ratio of enrollment to the population 5 to 17 years of age increased during the biennium from 81.3 to 82. During the period from 1930 to 1932, there was a decrease in enrollment in the kindergarten and first four grades amounting to as much as 5.3 per cent in the first grade. In the other grades the greatest increase was 5 per cent in the eighth grade. The percentage of increase rose rapidly through the high-school grades to 24 per cent in the fourth year.

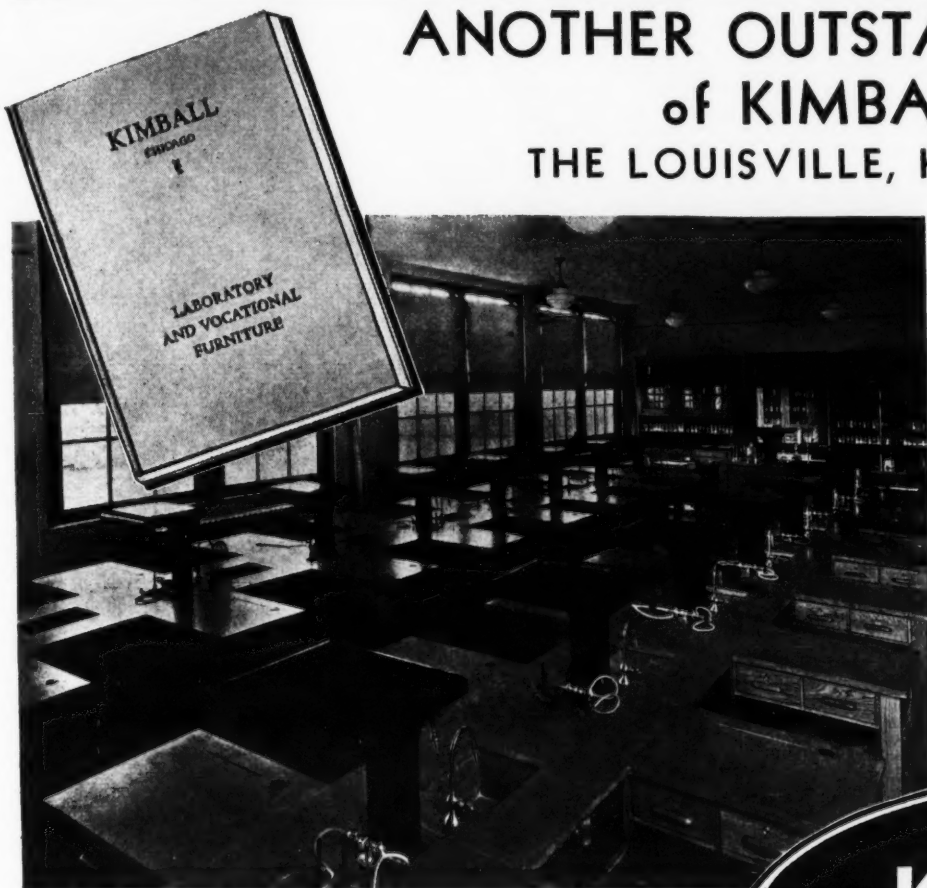
The number of pupils in average daily attendance in the elementary and secondary schools of the country in 1932 was 22,245,344. From 1930 to 1932 the number in average daily attendance increased 4.6 per cent. In 23 states the increase was 5 per cent or more, and Oregon reported the greatest increase.

During 1932 there were 20,747 more teaching positions than in 1930 which represented an increase of 2.5 per cent. The total number of teachers employed was 871,607, and the total number of teaching positions was 863,348. The average annual salary of teachers, supervisors, and principals combined was \$1,417 in 1932. The average by states ranged from \$593 in Arkansas to \$2,494 in New York. The average regular high-school salary ranged from \$2,747 in New Jersey to \$772 in Arkansas.

The total revenue receipts for elementary and secondary schools in 1930 was \$2,088,556,837, and in 1932 the amount was \$2,072,396,907, or a decrease of 0.8 per cent. In only two states, Delaware and North Carolina, is 50 per cent or more of the receipts from appropriations and taxation for school purposes derived from state sources. The percentage of school funds derived from state sources ranged from 88.8 per cent in Delaware to almost nothing in Kansas. In 29 states, part of the funds from taxation and appropriations is received from the county. In these states the proportion derived from the county ranged from 64.1 per cent in Nevada to 0.9 in New Jersey. In 20 states the smaller school units supply 75 per cent or more of the school income. The proportion derived ranged from 98.2 in Kansas to 11.2 per cent in Delaware.



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### CALIFORNIA SPENDS MILLIONS TO "EARTHQUAKE-PROOF" SCHOOL BUILDINGS

(Continued from Page 52)

which had no funds for construction and where there was no known earthquake risk.

Despite Mr. Kersey's reasonable plea, the justice of which was recognized by builders and educators throughout the state, public sentiment would brook no change in the new law. The memory of the Southern California schoolhouse, leveled like a band box by the March 10 earthquake, was too fresh in the memory of most citizens. If such a condition could prevail in one city, why not in another. Better have all these schools built so strong as to resist earthquakes.

Six months after the new law had been passed, 692 of California's 3,600 school districts had applied for safety inspection of existing school buildings to say nothing of hundreds of buildings inspected by engineers in cities without application to the state.

In keeping with the spirit of the law, the San Francisco Board of Education recognized its responsibility imposed by the new state law which raised the standards of construction for school buildings far above those which house children before and after school hours.

#### San Francisco Pushes Remodeling

San Francisco closed 18 of 102 buildings, but through an arrangement quickly set up by Dr. Edwin A. Lee, newly appointed superintendent of schools, the displaced children were housed in neighborhood elementary or high schools in curtailed daily sessions beginning at 12:30 P.M. The regular occupants of the school building whose facilities were usurped shared their quarters by holding classes each morning from 8 to 12. Thus each group of children affected was given four instead of five hours schooling daily. Eighteen thousand children were reduced from five to four hours daily while the buildings were being repaired.

As is usual in cases where boards of education are forced by state law to make some unusual

arrangement or expenditure of money, an immediate cry went up from taxpaying groups and parents as to why the schools were closed.

Commissioner Ira W. Coburn, chairman of the physical properties committee of the San Francisco Board of Education simply pointed out that:

Berkeley, across San Francisco Bay, had closed 19 of its 25 buildings under the Field Law, and the children were being schooled in tents.



THICKENING OF WALLS TO TIE THE INNER TO THE OUTER SECTION OF THE WASHINGTON IRVING ELEMENTARY SCHOOL, SAN FRANCISCO. This was one of the remedies prescribed by engineers to bring the school within the provisions of the Field Law, an earthquake-proofing act.

Los Angeles had closed 149 schools out of 797 and had demolished 25 buildings to date, as a starter toward complying with the Field Law. In Los Angeles the children were also schooled in tents.

Commissioner Coburn did much toward clarifying the muddle of misunderstanding caused by the new law throughout the state when he said: "There still exists in San Francisco the vague notion that 18 schools ordered closed here fell below the building standards set up at the time of construction. It should be stated once more that the buildings in question complied with existing building laws at the time they were built, and, what is more important, they are of steel-frame construction, a type of design that has withstood the most severe earth shocks in California. Both in San Francisco and elsewhere no building of this type has ever failed."

"The buildings scheduled to undergo repairs have been approved by competent engineers upon many occasions. At the time the buildings were erected, between the years 1908 and 1919, these buildings were approved by the regular inspection service maintained by the San Francisco Board of Public Works, the general contractor for the board of education. In addition, according to reliable information, the San Francisco Chamber of Commerce maintained during this period, with a view to encouraging sound construction in all public buildings, a staff of competent engineers whose duty it was to inspect all school buildings then under construction. It is apparent that the inspection safety features of the San Francisco building code were as rigid then as they are today."

#### Real Conditions Not Bad

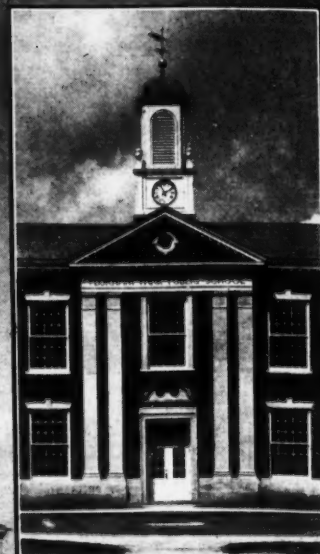
"The San Francisco board of education took additional safety precautions immediately after the June 29, 1925, earthquake at Santa Barbara, California, and employed a staff of engineers to visit that city for the purpose of inspecting buildings, damaged and undamaged, after that earthquake to determine if the San Francisco public-school buildings might be strengthened in any manner to

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bring the structures to a higher standard of safety. The engineers returned from that investigation with a report that all buildings of the type and class of the San Francisco public schools had withstood the Santa Barbara earthquake.

"The 1933 changes made in the California state law, therefore, were responsible for the repairs which have been ordered made on San Francisco public schools; not the original type of construction employed in the erection of public schools in San Francisco.

"It is therefore apparent that the eighteen closed schools are of a higher type of construction than those which fell in the March 10, 1933, earthquake in Southern California.

"There is no record to show that buildings of the type of construction of San Francisco public schools have ever been damaged in earthquakes.

"Lateral stress safeguards are new factors in building. Prior to the 1933 Southern California earthquake, no mention has been made by engineers or architects of the desirability of providing against lateral stresses which is the new standard of rigidity in school building in this state."

### A Huge Bill

California is now paying the bill for raising the standard of schoolhouse construction to the highest point it has ever known. What that bill will ultimately be, no one can now predict. Los Angeles is reported to face expenditures of \$31,000,000 for repairs under the Field Act or for new buildings. San Francisco has already expended \$950,000 and the total will reach a million for 18 buildings. Berkeley faces a bill of at least a million dollars for repairs or new buildings. Estimates of the cost of making Sacramento schools conform to the new law are \$750,000; Oakland faces an obligation in excess of a million dollars to comply with the new law, and numerous small school districts are making repairs on buildings which will cost the taxpayers sums variously reported at from \$5,000 to \$500,000.

The actual repairs made necessary to bring a

building up to the standard provided by the Field Act vary greatly, but the most common repair is the most expensive. It involves tearing open the covering on the steel frame of a building and placing added steel plates at each intersection so as to resist lateral motion such as is caused by earthquakes. In many instances, in order to accom-



STEEL BRACES SUPPORTING AN ALREADY STRONG STEEL FRAME

were installed in the Washington Irving Elementary School, San Francisco, to bring the building, erected on high ground, within the provisions of the new California law. The brace is covered by white plaster.

plish this one operation the entire facing of a building must be removed. In many buildings the walls must be strengthened by an additional layer of concrete. With a sidewalk on one side of the building and the interior of a classroom on the other, the strengthening of walls had provided a formidable problem for engineers.

In a report received by the San Francisco board of education, the purpose and nature of the repairs ordered under the regulations of the State Board of Education for strengthening schoolhouses against lateral forces, are made clear:

### Character of Remodeling

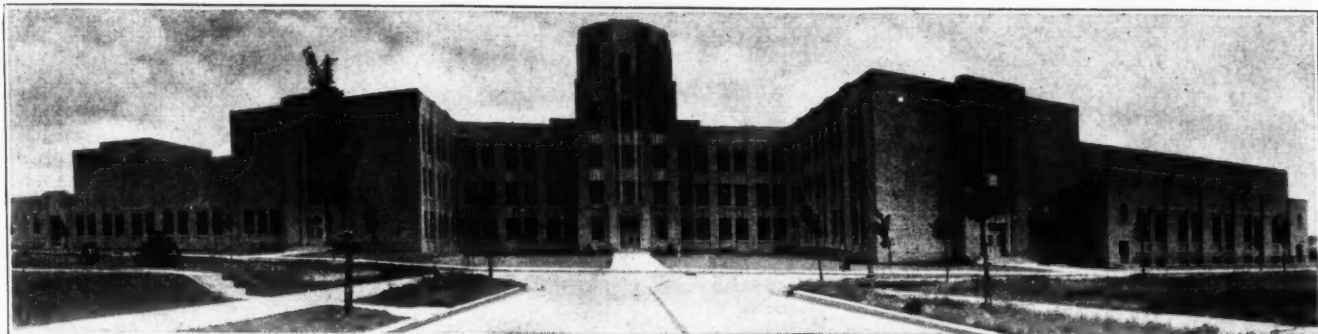
"These regulations (of the state board) require that all such buildings be designed to resist lateral forces. For buildings such as those which are the subject of this report, this lateral force must be either that of a wind pressure of 20 pounds per square foot on the exterior exposed surfaces of the building or, if greater, a force equal to 2 per cent of the weight of the building above any point. Where dependence is placed on a steel frame for resisting lateral forces, the frame itself must resist the 20-pound wind load, or at least 1 per cent of the weight of the building. Buildings with steel frames are recognized as better than masonry-bearing walled buildings. If the walls are required to resist the lateral force, the wind force to be resisted is as above stated, but the alternate force is increased to from 2 to 10 per cent of the weight of the building. If it is found that the steel frame will not carry the lateral force as specified, then the walls must carry the full lateral force for bearing wall buildings. In resisting lateral forces, members may be strengthened 33 1/3 per cent more than the allowable stresses in the various materials permitted for ordinary dead and live loads."

### The Controversy Over Materials

The huge school-reconstruction program has revived the quarter-century-old controversy between lumber dealers, cement-plant owners, and brick

(Concluded on Page 62)





RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN • ARCHITECT—GUY E. WILEY • PLUMBING CONTRACTOR—WENZEL & HENOCK CO.

## New Milwaukee School

### PROTECTED AGAINST PLUMBING FAILURES

#### *Rufus King High School Installs Crane Plumbing Throughout New Building*

• The school board that is constructing for generations to come must call for quality and longevity and it must ask for a cost commensurate with value received. That is why Crane equipment is the most *economical*, since it costs no more than ordinary lines.

Crane equipment solves the repair and upkeep problem of generations to come. It saves thousands of dollars for the taxing unit, releasing from bondage the dollars needed for other growing educational needs.

Those in charge of the Rufus King High School construction did not attempt to econ-

omize on a few pennies in the purchase of cheaper faucets, lavatories, closets. Instead, they selected Crane plumbing throughout. Now they know that piping and fittings hidden within the walls of the new structure and buried under floors will last as long as the structure.

In many communities where school construction is in progress the question of plumbing "economy" comes up. When your school architect writes in his specifications for plumbing be sure that he has requested the most economical, as well as the best — Crane plumbing.

Let the counsel of a Crane contractor show you where economy lies in present day school plumbing. However large or small your budget may be, insist on *quality in all hidden fittings!*

# CRANE



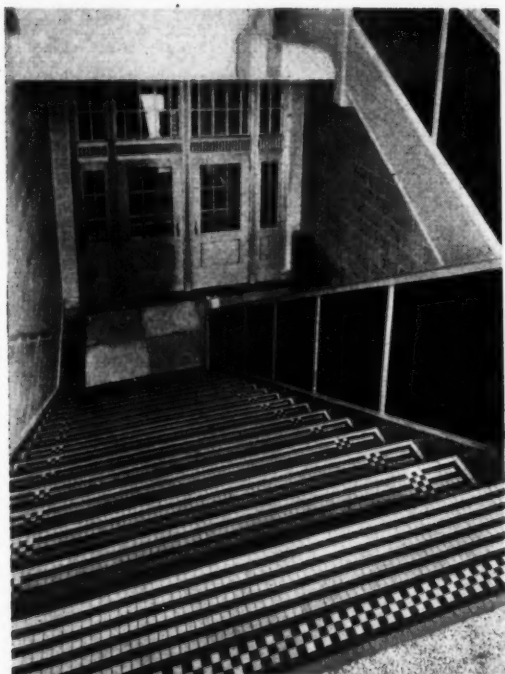
CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILLINOIS  
NEW YORK: 23 W. 44TH STREET

*Branches and Sales Offices in One Hundred and Sixty Cities*

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

## In the RUFUS KING HIGH SCHOOL . . . .

### Safe Walking Provided by Alundum Tiles



**A**LUNDUM Ceramic Mosaic Tile (with vitreous mosaics) in the showers and on the stairways; Alundum Aggregate in the terrazzo of the landings and platforms—with these two Norton Floors products permanent walking safety has been assured in the new Rufus King High School of Milwaukee. (Designed by Bureau of Buildings and Grounds, B. J. Jelinek, Chief; G. E. Wiley, Architect; Milwaukee Board of School Directors.)

**NORTON COMPANY**  
Worcester, Mass.

T-393

**NORTON FLOORS**



(Concluded from Page 60)

manufacturers over the respective merits of wood, concrete, and brick as school-building material in earthquake areas.

Pacific Coast lumber dealers have been intensely active in proving to school-board members and superintendents that wood is the best building material for a school, and they support it by the known fact that wooden buildings are seldom damaged by earthquakes. The lumber interests have been busy making numerous tests to show the worth of wood under earthquake conditions and have even developed a fireproof wood, although this latter development is still in the experimental stage.

The "clay-products people," as brick manufacturers are known in California, have thus far put up a winning fight in many sections to induce school authorities to replace brick with brick where a wall must be rebuilt to conform with the Field Act. Engineers agree that brick should not be discarded as a building material in California simply because buildings improperly constructed have had brick as a basic material. There is a well-defined feeling that if specifications are followed and plenty of cement used in mortar, brick buildings will give a good account of themselves in an earthquake.

The cement manufacturers' association has issued an attractive booklet showing how well concrete behaves under the stress of a shock.

#### Public Opinion Aroused

The attitude of the public toward these repairs is reflected by editorials which appeared in the *Berkeley Gazette*. The leading editorial writer says:

Now that we are aroused to the seriousness of the situation, there is probably not a city in California that is prepared to meet the financial burden of correcting faulty construction in schools or to destroy ancient, dangerous structures and rebuild them to conform with conditions we cannot and should no longer attempt to evade.

California is an earthquake area. Only a false sense of state pride, coupled with an overdeveloped promotion complex, has led us to deny or disregard the truth. Other regions of the country face equal or

greater menaces than earthquakes, and those that are wise build their homes and schools to withstand these natural menaces.

To go on, as we have since 1906, building showy but flimsy schoolhouses which may momentarily collapse and crush out the lives of hundreds of children, is the most monumental demonstration of the stupidity of the age.

This, of course, is a bad time in which to undertake to correct our mistakes of the past, but the cost of taking the necessary precautions for the protection of the lives of our children would be little in comparison with the cost of one major calamity that could result from the collapse of a schoolhouse during school hours.

In an earlier issue, the same editor of the *Berkeley Gazette* wrote:

The approaching critical situation in which the city will find itself without adequate school-housing facilities, will force decision between the financing of new buildings, closing the schools indefinitely, or returning children to buildings that are known menaces in case of earthquake.

Unhappily, too, the people have no choice in the manner in which the necessary school-building program can be financed. The school authorities have but one way in which to obtain the necessary revenue to build the structures necessary for the housing of school children, and that is by bonding the school district for the needed amount. And the sum needed will be not less than a million dollars. It may be more, depending upon the number of buildings condemned by state engineers.

Nor can there be any temporizing with human life. When the school authorities know that certain buildings are structurally unsound they are morally bound to immediately close them to further activities. In so doing, they will be acting only as normal human beings should act under the circumstances and they should not be subjected to criticism for their decision. Certainly if they permitted the continued use of school buildings after it was known they were a menace to the lives of the children, their position in the community would be untenable.

Nor can the present board of education be held responsible for the structural inadequacies of the schoolhouses of Berkeley. Some of the buildings that are almost certain to be condemned are between 25 and 40 years of age. Some went through the great earthquake of 1906 without collapsing, but they

doubtless were weakened and might not now stand up under even a minor temblor.

The situation, while creating a major problem at an unfortunate period, is no less pressing for immediate solution. It constitutes a charge against the city from which there is no appeal. . . . It is flatly up to the board to take the only action open to that body and to the people to support the board.

#### NEW SCHOOL BUILDING ERECTED WITHOUT BOND ISSUE

The school district of Wadena, Minn., has completed the erection of an addition to the old building. In the erection of this building, a unique method of financing was employed. Bonds for the construction were voted by the village, with a provision that they be retired by the water and light fund of the village, instead of taxes. Through this method, the village could finance the construction without increasing the burden of taxation. Under the regular procedure, if the school district had floated the bonds, it would have been necessary to retire them through taxes, but the new method has obviated the necessity of raising the money through taxation.

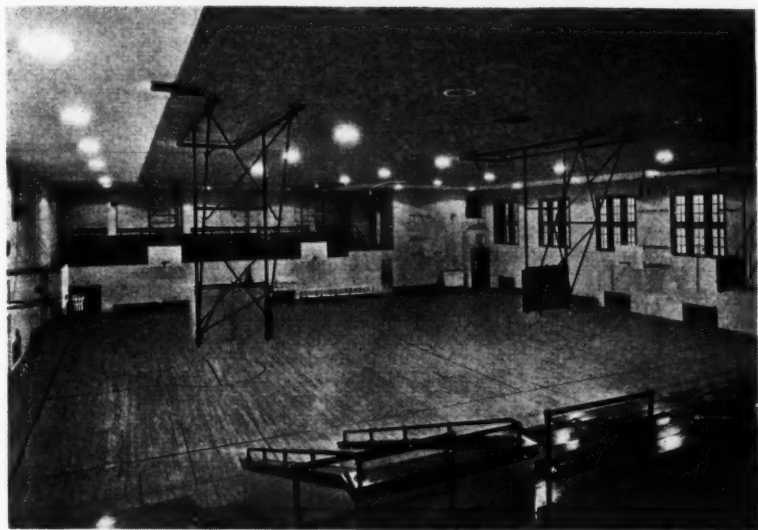
The building has been erected on the school grounds adjoining the old building, and includes an auditorium, a gymnasium, and a combined public and school library. The school district provides heat, light, and janitorial service, while the village assumes the cost of insurance and repairs on the building. The auditorium and gymnasium have a combined seating capacity of 2,200 persons. The total cost of the building was approximately \$80,000.

The building has been leased by the school board for school purposes for 99 years. When the school is not using the building, the auditorium will be open for various activities of any community organization. The building provides a modern school plant for a school organized on the six-three-three plan with a homeroom arrangement. The old building has been remodeled to provide adequate rooms for all purposes, and all assembly activities are held in the new auditorium. With the erection of the new addition, the capacity of the building has been increased by 50 per cent.

♦ Kansas City, Kans. The board of education has invited bids for the construction of the Wyandotte High School, which is expected to cost \$1,600,000. The building will be erected from plans prepared by J. W. Radotinsky, architect, of Kansas City.



## NEW LANE TECHNICAL HIGH SCHOOL — CHICAGO



3 Gyms—Corrective Rooms and Swimming Pool

*Completely Equipped with*  
**The CHICAGO Line**

Basket-Ball Gymnasium and Swimming Pool Equipment

**USED IN MOST MODERN SCHOOLS**

**Chicago**  
**Gymnasium Equipment Co.**  
1833 W. Lake Street Chicago



"Put in pipe that will outlast the bonds, George. We can't afford a lot of maintenance expense."

"Okay, we're using Reading GPWI\* Pipe everywhere there is the slightest chance of hard usage."

\*GPWI—  
Genuine Puddled  
Wrought Iron

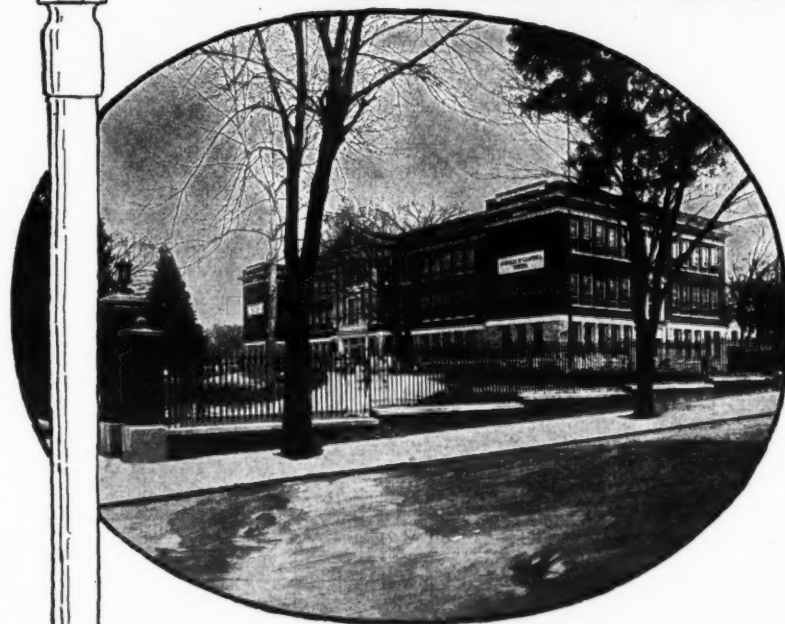
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information,  
write*



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PHILADELPHIA

SCIENCE AND INVENTION HAVE NEVER FOUND A SATISFACTORY SUBSTITUTE FOR GENUINE PUDDLED WROUGHT IRON

## Stewart FENCES



**BETTER SAFE..  
than SORRY!**

Every school district can afford to build a good schoolyard fence— or, rather, NONE CAN AFFORD TO NEGLECT IT.

Every one recognizes the imperative necessity of restraining children from the dangers of their own carelessness but when you buy Fence buy PERMANENCE.

Stewart Fences, whether Iron or Chain Link Wire, afford the happy combination of serviceability and attractive appearance—they protect and beautify.

School Fence literature and address of local sales and erection office upon request.

**The STEWART IRON WORKS CO.**  
204 STEWART BLOCK CINCINNATI, O.

"Fence Builders To America Since 1886"





We also manufacture a complete line of Deodorants, Floor Soaps, Waxes, Disinfectants, Liquid Toilet Soaps, Insecticides and Plumbing Cleansers.



## This is what we mean by . . . CUTTING MAINTENANCE COST

We mean that with Seal-O-San on your floor, you *eliminate* the time and labor needed for expensive scrubbing.

We mean that a Seal-O-San floor requires only an *occasional* mopping with a damp mop to keep it clean.

We mean that Seal-O-San, because it resists alkali, alcohol, soap and other chemicals, *lasts longer* than varnish or other finishes, and therefore saves frequent refinishing.

That is why 3000 schools have Seal-O-San floors today. This beautiful, soil-proof finish, that is so easy to apply and so inexpensive to maintain, gives them savings of 50% and more.

Let Seal-O-San show you the way to *real* savings. Used on all your floors, it will eliminate costly up-keep and will give you finer-looking and cleaner floors than you have ever had before

The HUNTINGTON LABORATORIES Inc.

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INDIANA  
999 S. Logan St., DENVER, COLO.

# SEAL-O-SAN

THE PERFECT FINISH FOR SCHOOL ROOM FLOORS

### THE RUFUS KING HIGH SCHOOL (Concluded from Page 48)

ways insure light at all times. Electric refrigerators in the storerooms of the cafeteria and foods laboratories greatly reduce the disturbances caused by delivery men. Sound-amplification conduits and pull boxes have been installed so that amplification may be installed in every room when funds permit the purchase of the necessary equipment. Corridor bulletin boards are glass incased and indirectly lighted. Corridor lockers are furred in and ventilated and equipped with new-type built-in, master-key-controlled, combination locks, thus eliminating the necessity for keys or padlocks. Toilet facilities for each sex are provided on all floors.

The corridors and stairways of the building are attractively finished with decorative buff-colored tile. Colorful drinking fountains, artistically designed and recessed in decorative niches, together with semi-modernistic lighting fixtures, illuminated bulletin boards and display cases, and brushed aluminum handrails, add to their attractiveness. Special call bells and fire horns have been recessed behind grills to prevent marring the beauty of the building.

While efforts to make the building attractive may strike the reader as entailing unnecessary expense to the taxpayer, it must be stated that utility has been the prime consideration throughout. With few exceptions waste space has been avoided and decorative features have been included because they served some useful function at the same time. While the building is both attractive and highly serviceable, the per-cubic-foot cost of 28.6 cents is among the lowest of any school building erected in Milwaukee in recent years.

RUFUS KING HIGH SCHOOL, Milwaukee  
Educational Contents

42 Classrooms of various sizes equipped to seat.....	Pupils 1,575
These rooms include the commercial-department rooms (6), social-science rooms (7), small special-help rooms (2).	

5 Laboratories furnished for.....	182	1 Mechanical-Drawing room for.....	46
1 chemistry, 36; 1 physics, 36; 1 biology, 30; 2 general science, 40 each. Each with work and supply rooms; also a greenhouse, battery room, and a photographic darkroom.		2 Study Halls containing seats for.....	395
3 Household-Art rooms equipped for.....	108	1 Library equipped to seat.....	136
Includes fitting room and supply rooms and a house-keeping suite consisting of a living room, dining room, and bedroom.		Includes a workroom and librarian's room.	
2 Art rooms equipped for.....	84	2 Student-activity or club rooms.	
Includes a supply room and kiln room.		1 Auditorium, bleacher-type seating.....	1,250
2 Music rooms equipped with seats for.....	138	Includes stage 33 by 54 and with Exhibition Lobby.	
Each room has space for a band or orchestra in front of seating and each has an instrument room.		1 Administration suite consisting of a general office, principal's office, vice-principal's office, life-advisement office, vault, mimeograph room, and supply room.	
1 Creative English room to seat.....	125	1 Medical suite consisting of waiting room, doctor's office, boys' infirmary, and girls' infirmary.	
This room has a stage and small balcony, is located adjacent to main entrance and is suitable for small gatherings.		2 Gymnasiums, each 48 ft. 6 in. by 91 ft., with auxiliary rooms.	
3 Industrial-Arts rooms equipped for.....	120	5 Team rooms with showers, etc., with corridor connection direct to athletic field.	
Including instructors' rooms, toolrooms, project rooms, finishing rooms, etc.		1 Teachers' dining room.	
		1 Cafeteria, seating capacity of.....	684
		With kitchen, cool room, storerooms, etc., and space for a laundry, and various smaller service rooms, conference rooms, storerooms, and receiving room.	



SIDE VIEW OF AUDITORIUM, RUFUS KING HIGH SCHOOL, MILWAUKEE, WISCONSIN  
The modernistic treatment of walls, ventilating grilles, and of the proscenium arch is conservative but extremely effective. The color scheme is warm grays and greens with brown in the seats and the velour curtain.



*In the new*  
**RUFUS KING HIGH**  
MILWAUKEE



Designed by Bureau of Buildings and Grounds, B. J. Jelinek, Chief; G. E. Wiley, Architect; Milwaukee Board of School Directors.



● Its smart exterior seems to suggest its equally attractive interior. Buff-colored tile walls, semi-modernistic lighting fixtures, artistic colored fountains recessed in decorative niches . . . fountains of course by Halsey Taylor! Write for our new catalog, just off the press.

**HALSEY TAYLOR**  
DRINKING FOUNTAINS

**THE HALSEY W. TAYLOR CO., Warren, Ohio**

**THE RYE CONSOLIDATED  
SCHOOL AT RYE, NEW  
HAMPSHIRE**

(Concluded from Page 40)

committee in conference. After much consideration, the plans submitted by Harold E. Mason, of Leominster, Massachusetts, were chosen as most nearly meeting the needs of the community. During the process of revising the plans, the State Commissioner of Education was consulted. He considered the plans in detail and made such suggestions as he felt would be of assistance in the layout of the building.

The superintendent of schools was engaged in graduate work at Harvard University during the summer and presented the plans to the graduate group studying the construction of school buildings. They were discussed in class and made the subject of special investigation by one candidate for the master's degree. This study furnished an unusually sound foundation for the work of the committee. The committee itself met almost weekly, while a member of its executive committee was continually on the grounds.

The building itself is easy to administer. The domestic-arts room adjoins the gymnasium by means of a serving room. This makes a very satisfactory unit for all school functions. A library alcove is placed at one end of the English room, making a complete workshop for the English courses. The lighting is particularly satisfactory in all parts of the building. The entire appearance is one of quiet dignity and is proving a valuable asset to pupils and teachers in their striving for a modern education.

**Outline of Specifications for Consolidated  
School**

Foundations of concrete, waterproofed and reinforced.

Exterior walls of terra-cotta tile, faced with New Hampshire brick.

Exterior trim of cast stone.

Roof covering of slate, all flashings of copper.

All corridors, stair halls, and vestibules of fireproof construction throughout, with floors of reinforced concrete, and walls of cinder-concrete tile.

All ceilings throughout of acoustical material.

Walls in general of hard plaster.

Burlap dado in all corridors.

Walls of auditorium-gymnasium of buff brick above sheathed dado.

All stairs of metal construction with asphalt-tile treads.

Finish floors throughout classrooms, etc., of rock maple, in corridors of asphalt tile.

Toilet partitions of metal, insulated construction, with chromium-plated hardware.

Exterior doors weatherstripped, with bronze interlocking sills.

Foot-scraping mats recessed at all entrances.

Interior finish of Arkansas pine, stained.

Blackboards of natural slate, with cork-display boards at the top.

All finish hardware of cast bronze. All doors opening into corridors have checks to prevent slamming and breakage of glass panels.

Plumbing of latest sanitary type, with seat-operating closets. Drinking fountains on each floor.

Water supply from an artesian well, with automatic pumping system.

A complete system of bells, fire-alarm, and radio outlets.

Lighting fixtures of latest school type, with safety holders, all metal parts of solid bronze.

Heating by vacuum-vapor system, ventilation by Wheeler system.

**PERSONAL NEWS**

● MR. STARR M. KING, of Newburyport, Mass., has been elected superintendent of schools at Beverly. Mr. King, who

succeeds the late S. H. Chace, will assume the position on January 1, 1935.

● MR. WALTER BRICK has been elected superintendent of schools at Decatur, Ind., to succeed the late M. F. Worthman.

● MR. C. R. THIBAUDEAU, of Marion, Mass., has been elected superintendent of schools at Newburyport, to succeed S. M. King.

● DR. WALTER SCOTT ATHEARN, president of the Oklahoma City University, died suddenly of a heart attack at the Hotel Statler, St. Louis, Mo., on November 13. Dr. Athearn was formerly president of Butler University, and had also been dean of the school of religious education and social service at Boston University.

● Massachusetts teachers and school authorities have united to promote the candidacy of ANNIE CARLETON WOODWARD for the presidency of the National Education Association in 1935. Miss Woodward is a member of the faculty of Somerville High School and has held numerous offices in the New England Teachers' Association, as well as in the National Education Association.

● ASSOCIATE SUPERINTENDENT MARGARET J. MCCOY, of the New York City school system, has been re-elected for another six-year term by the board of education.

● MR. T. G. GRIEDER, superintendent of schools at Winslow, Ariz., has been elected president of the Arizona Education Association.

● SUPT. R. E. CORRILL, of Yellow Springs, Ohio, has been elected president of the Western Ohio Superintendents' Association.

● On January 14, 1935, HON. J. A. KELLER will succeed A. F. Harman as State Superintendent of Public Instruction in Alabama. The new state superintendent, who was formerly superintendent of education in Covington County, was educated at the State Normal College and at Peabody College for Teachers. He was recently president of the Alabama Education Association.

● MR. PHILIP J. HICKEY, formerly director of relief work for the board of education of St. Louis, Mo., has been elected secretary-treasurer, to succeed C. A. Roe. MR. GEORGE W. SANGER, formerly chief draftsman for the board, has been named commissioner of school buildings, to succeed E. T. Friton, resigned.

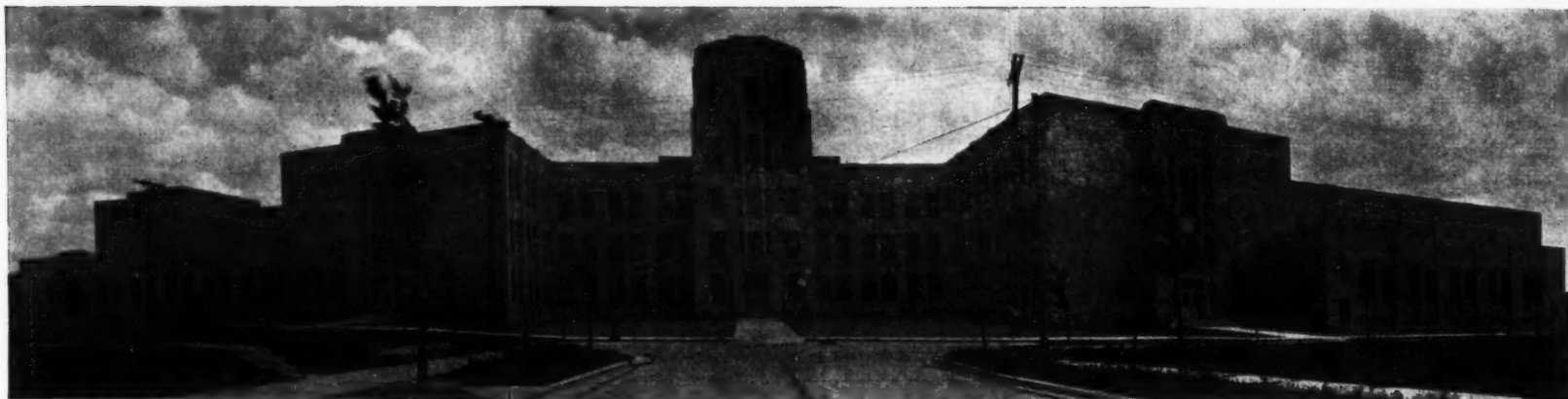
● Three new members have been elected to membership on the Indianapolis board of education. The new members, who will take their places on January 1, are MR. CARL WILDE, MRS. MARY D. RIDGE, and MR. A. W. BOYD.

● DR. PAUL R. HANNA has been appointed Associate Professor of Education in the School of Education of Stanford University, in California. Dr. Hanna, who was formerly Assistant Professor of Education at Teachers College, Columbia University, will direct the graduate courses in elementary education and will participate in the fused courses now being developed in the university. He will assume his new work at Stanford, beginning with the summer quarter.

● EDWIN L. DALEY, 64, superintendent of schools at Circleville, Ohio, died on December 3, following a long illness. Mr. Daley was a graduate of Ohio University. He was elected superintendent of schools in June, 1933.

● MR. JOHN EARLY, 66, a member of the county board of education of Davidson county, Tenn., died on December 13, after an illness of two years. He was a member and former president of the board of trustees of Montgomery Bell Academy, and attended Vanderbilt University.

# THIS, TOO, IS HOLTZER-CABOT "Equipped"



THE RUFUS KING HIGH SCHOOL — MILWAUKEE, WIS.

Equipped with Holtzer-Cabot Fire Alarm, Program Bells, Telephones, Call System, Stage and Booth Signals, and a Special Game Reporting System for the Stadium.

The Milwaukee Board of Education, ever careful to have the best protection and efficiency for its schools and personnel, chose Holtzer-Cabot Signal Systems for both this school and the new Solomon Juneau Junior High School.

Designed by  
Bureau of Buildings  
and Grounds

B. J. JELINEK,  
Chief

For sixty years, Holtzer-Cabot has specialized in School Signaling Systems.

Holtzer-Cabot engineers are at your service.

G. E. WILEY  
Architect

Milwaukee Board  
of  
School Directors

Write Signal Dept. 41 for further information.

## THE HOLTZER-CABOT ELECTRIC CO. BOSTON

Offices in all Principal Cities

PIONEER MANUFACTURER OF SCHOOL SIGNALING SYSTEMS

### SCHOOL LAW

#### School-District Government

A statute providing that members of the county board of education elected at the general election shall meet on the first Monday in July thereafter and organize, was held to fix the time of organization as the beginning of the official term of the member of the board (W. Va. acts of 1933, 1st ex. sess., c. 8, art. 5, § 1; W. Va. constitution, art. 4, § 7, and art. 12, §§ 1, 3).—*Rogers v. Jones*, 175 Southeastern reporter, 781, W. Va.

Township school trustees, as the fiscal agents under the school law for the business of their townships, may in their discretion employ private attorneys to prosecute suits for the recovery of moneys owing to the school districts of their township, notwithstanding the statutory provision (Smith-Hurd revised statutes of 1933, c. 14, § 5) that the state's attorney shall prosecute all actions for the recovery of revenues, moneys, etc., accruing to the state, his county, or any school district or road district in his county.—*Lynn v. Trustees of Schools Tp. No. 16, Pope County*, 271 Ill. App. 539.

A decision of the state superintendent of public education and the state board of education, finding the school superintendent's contract with the school district valid was held binding on the trustees of the school district as to questions of fact.—*San Felipe Independent School Dist. v. Nelson*, 74 Southwestern reporter (2d) 136, Tex. Civ. App.

In an action on a school treasurer's bond, that the treasurer deposited certificates of deposit, bearing interest in an account as treasurer, and received credit therefor, did not render the treasurer responsible to the district for interest accrued and paid on certificates to the bank presenting certificates. *Board of Education of Adrian v. Cooper*, 107 Northwestern reporter 1133, 98 Minn. 535.

In an action on a school treasurer's bond, that a treasurer mingled his own funds with those of the school district and used them in his private affairs did not render him liable to the district for interest on funds so used where he was ready and able at all times to pay whatever orders might be drawn against school funds and fully accounted for all moneys received by him during his term.—*Board of Education of Adrian v. Cooper*, 107 Northwestern reporter 1133, 98 Minn. 535.

A bond of a school-district treasurer executed in 1929 should be construed in the light of a statute enacted in 1925 providing that neither treasurer nor sureties were liable for a loss resulting from the failure of the designated depository, except in certain cases where the treasurer was the employee of the depository (S. Dak. revised code of 1919, § 7565; S. Dak. laws of 1925, c. 154, §§ 1, 2).—*Seneca Independent School Dist. of Seneca v. Traver*, 256 Northwestern reporter 365, S. Dak.

### FINANCE AND TAXATION

♦ Boulder, Colo. The board of education has recently approved a new system of school financial accounting, using the Strayer-Engelhardt system. The change to the new system will require a slight modification of the present budget form, at a cost of approximately \$40.

♦ Grand Rapids, Mich. Supt. L. A. Butler recently presented to the board of education a proposal for enlisting the co-operation of all city organizations in the working out of an acceptable minimum educational program for the school system. Mr. Butler explained that in view of the fact that the schools are at present operating on a reduction of 37.5 per cent from former years, the board cannot be expected with a decrease of \$800,000 to provide the necessary instruction and facilities which have been provided in former years, without obtaining additional state or federal aid or both. Mr. H. N. Morrill, business manager of the board, reported funds totaling \$1,061,000 in hand for the operation of the schools this year. This includes an estimated \$334,000 in state revenue from sales and liquor taxes.

♦ Mr. Noel Turner, president of the Michigan Association of School-Board Members, is supporting a movement to organize the state in support of a demand for sufficient school aid for the schools of the state. It was brought out that most of the schools in the state face a serious financial situation as a result of influences over which they have no control. The most outstanding of these are the changes made in the past few years in the sources of revenue for operation of schools. The only reliable source of income at present is the primary fund.

♦ The Illinois State School Board Association, at its recent meeting in Springfield, expressed its opposition to any limitation on the total of all tax rates

levied against property, unless, and until, other adequate and certain sources of revenue are provided. The association adopted resolutions, urging an increase of the state school fund to \$30,000,000, and opposing any legislative proposals tending to centralize control over school policy and school expenditures in any state authority, board, or commission.

♦ Columbus, Ohio. The state department of education has estimated that \$82,000,000 will be available from all sources of taxation for schools next year. This means an average of \$66 per pupil for all school children in the state. Dr. B. O. Skinner, State Superintendent, has estimated that approximately \$27,000,000 must be raised by local tax levies to make the \$82,000,000 available.

♦ The Illinois City Superintendents' Association, at its recent meeting in Springfield, approved a plan for a survey of the state's school system with a view of establishing a better source of revenue for the schools. The consolidation of school districts in the state and changes in the method of appointing state and county school officers were also discussed.

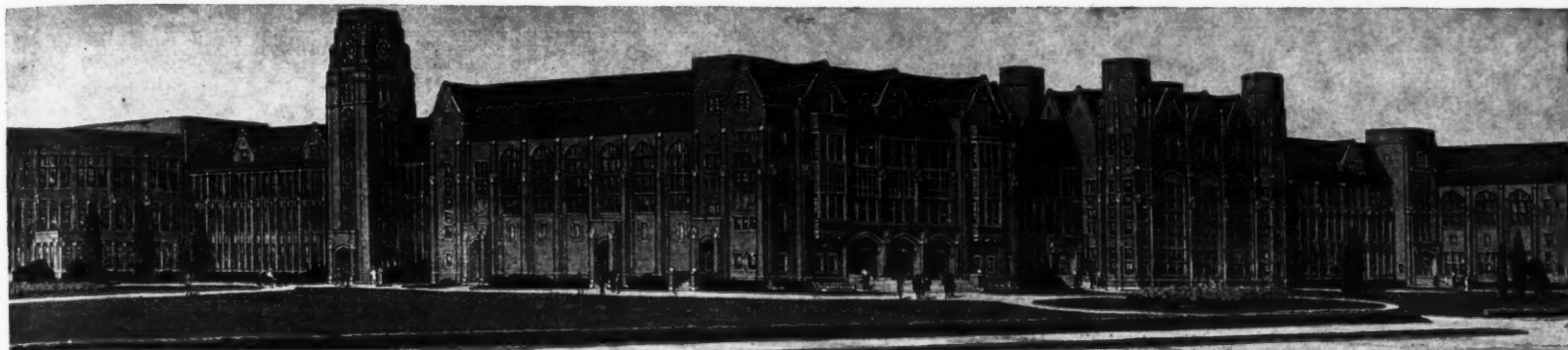
♦ Chicago, Ill. School department heads have submitted new estimates of expenditures to the board of education, which indicates a saving of approximately \$7,000,000 in the 1935 school budget, as compared with a budget of \$71,356,028 for the year 1934. The saving is expected as a result of economy methods introduced by the board more than a year ago, despite the fact that the board will increase its fund for teachers' payrolls by \$1,400,000 and must pay additional fixed charges of \$936,064, largely toward repayment of the RFC corporation loan of \$22,300,000 which paid overdue school salaries last summer.

♦ Elmira, N. Y. The board of education has adopted a budget for 1935, calling for \$970,072, or an increase of \$24,962 over the year 1933-34. The budget calls for a decrease of \$19,000 in the amount to be raised by taxation, reducing the taxable revenue from \$572,630 to \$553,630.

♦ Talladega, Ala. The public schools will be in operation for an eight-month period, due to a shortage of funds.

♦ Knoxville, Tenn. The school board has prepared a tentative budget, calling for a total of \$1,040,000 for the year 1935, or an increase of \$60,000 over the estimate for 1933-34. The board is facing the possibility of a forced closing of the schools for a brief period early in the year.





The Albert G. Lane Technical High School, Chicago, Illinois, one of the largest schools of its kind in the world. John C. Christensen, Chicago, Illinois, Architect; W. E. O'Neil Construction Co., Chicago, Illinois, General Contractor. All corridor lockers as well as lockers for 4 gymnasiums and swimming pool furnished by Berger.

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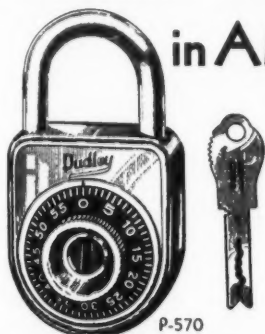
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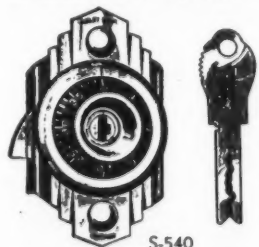
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This automatic, self-locking Dudley Padlock with masterkey control is theft-proof.

A three number, combination, pick-proof lock with spinning dial that leaves no last number clue.



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America's leading educational institutions have adopted Dudley Locks as standard equipment for locker room use.

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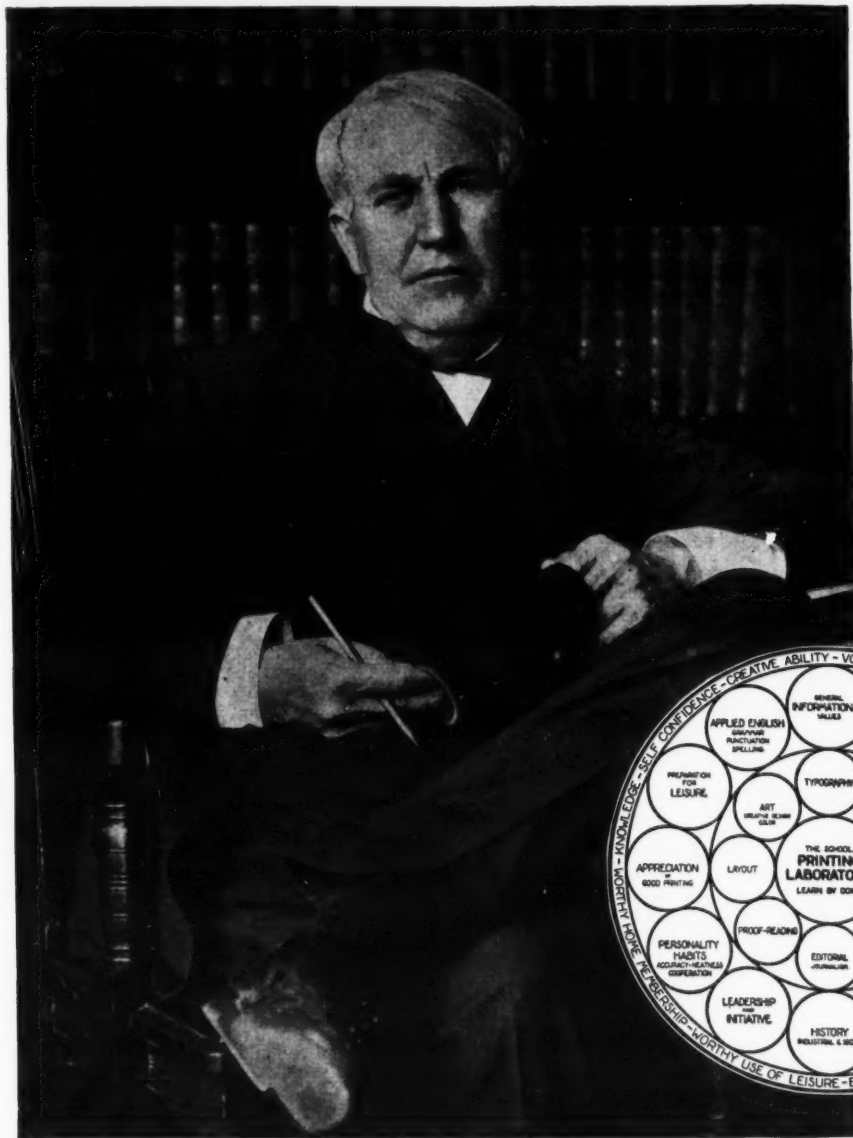
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### American Type Founders

DEPARTMENT OF EDUCATION

JERSEY CITY, NEW JERSEY



#### BUILDING NEWS

♦ The town of Uxbridge, Mass., contemplates the erection of a six-room addition to the present high school, or the erection of a new high school of ten rooms. The new school construction has become necessary to relieve the overcrowded conditions now existing. At present, 237 students are housed in a building designed to house 110 students.

♦ The school board of Worcester, Mass., has taken steps to erect a new school and additions to a number of existing structures, in order to relieve overcrowded conditions now prevailing.

♦ A four-room addition to the Brainerd School was completed in North Thompsonville, Conn., during the summer vacation, at a cost of \$40,000. The building which is in daily use, makes a very desirable and attractive addition to the school plant in the town which has more than 3,000 children in public and parochial schools.

♦ New Castle, Ind. The school board recently sold bonds in the amount of \$65,000 for the purchase and remodeling of a physical-training building for the city schools. The bonds were sold at a premium of \$1,311.75, plus accrued interest, at 4½ per cent.

♦ New York, N. Y. The board of education has approved an expenditure of \$2,700,000 for the construction of a new school, equipment, and additions to other buildings. The largest item in the building program of the board is a combined elementary and junior high school to be erected in the Williamsburg section of Brooklyn. More than \$300,000 was appropriated for equipment in various schools, and \$900,000 for additions to school buildings.

♦ San Antonio, Tex. The board of education contemplates a survey of the school plant to determine present building needs and to serve as a guide for the future. The survey is to be conducted by T. H. Shelby and J. O. Marberry of the division of extension of the State University, and is to be conducted without cost except for the necessary materials. The board plans the carrying out of a school construction project costing \$1,340,000, to be financed with a PWA loan and grant.

♦ Toledo, Ohio. The school board has ordered a survey of the school plant to determine the exact needs in connection with a school-building program which is planned with the aid of the federal government.

♦ The Maine School Finance Commission, in a recent communication, has called attention to the anti-

quoted condition and poor placement of a large part of the school plant. The Commission has recommended that a committee from the state department of education be appointed to work out a state-wide program for building placement and development.

To promote the elimination of wasteful practices in business management, it was recommended that the state department be subsidized for research and that it provide additional support to carry on researches necessary for the development of adequate unit-cost figures in terms of various categories of service. The aim of the state department will be to assist local communities in interpreting the results of such studies in terms of their own local educational programs.

♦ Salt Lake City, Utah. The board of education has carried out a program of reconstruction of school buildings under CWA and FERA auspices. The program was financed with a PWA grant of \$200,000 and an appropriation of \$115,000 by the school board.

♦ New York, N. Y. The building-and-sites committee of the board of education has prepared an extensive school-building program which it will shortly present to the board for approval. The cost of the proposed building program will range from \$75,000,000 to \$100,000,000.

The new program is a revision of one previously prepared calling for a federal loan of \$50,000,000 for 80 new schools. This program will also be financed with funds to be obtained from PWA sources.

♦ Talladega, Ala. The school buildings and grounds have been improved at a cost of \$25,000. The work was done with the assistance of CWA labor and was carried on during the past twelve months.

♦ Springfield, Mass. The control of school buildings now vested in the city government, but desired for many years by the school board will be a major issue in the municipal election next year. A movement has been started to bring about a change in the control through legislative action. It is anticipated that a referendum will be placed before the voters for approval.

♦ Chicago, Ill. Supt. W. J. Bogan has prepared a building program, calling for the erection of four high schools and additions to ten elementary schools, at a cost of approximately \$6,000,000. The new building program will increase the seating capacity of high schools by 7,034, and that of the elementary schools by 5,284.

♦ Maquoketa, Iowa. New stokers, recently installed in the heating plant of the high school have proved

entirely successful. It is believed that the stokers will result in a saving of \$1,000 in fuel this year.

♦ Montclair, N. J. The board of education anticipates a budget surplus of \$24,561 at the end of the fiscal year, due to the release of 1931 railroad taxes which had been the subject of litigation and held in escrow for the board. The board's share of the tax, which is \$24,561, had been written off as a deficit, but now becomes a surplus.

♦ Nogales, Ariz. The board of education has completed the erection of a retaining wall around one of the elementary-school buildings, which has increased the playground space by nearly 50 per cent. The wall was built of native rock, and the work was done under PWA auspices. The only cost to the school district was for supervision of the workmen and a small expenditure for material. A five-room elementary school was completed last year under FERA auspices.

♦ Gilroy, Calif. The board of education has begun the erection of a music building for the Union High School. The building is of wood, with stucco finish and tile roof, and is being erected under FERA labor. The estimated cost of the construction work is \$12,000.

♦ Fillmore, Calif. The board of education recently completed the erection of a five-room annex for the Fillmore Union Grammar School. This is the first school building in the state to be erected according to the laws governing school buildings in the earthquake territory. Thirty-five tons of steel were used in the construction of the cement walls of the five classrooms.

♦ Anniston, Ala. The board of education has begun the erection of a Negro school, to cost \$60,000. A contract has been let for two additions to the high school, to be erected at a cost of \$90,000.

♦ Fort Worth, Texas. The board of education has voted to rebudget its building fund, in accordance with PWA demands, to provide \$336,147 additional for school-construction work on projects included in its \$4,167,000 school-building program. The revision was made necessary because of rising materials prices, which caused contractors' bids to exceed the amount set aside for the projects.

♦ Cleveland, Ohio. Supt. C. H. Lake has presented to the board of education, a \$2,500,000 building program. No recommendations for building needs were made in view of the lack of funds at the present time.



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No. 192



No. 164-M

### THE TEACHER'S RESPONSIBILITY IN THE ADMINISTRATION OF A SCHOOL SYSTEM

Some teachers who have little or no teaching experience secure better and larger results than some who have had a longer period of service. While it is also true, some teachers who have had little academic and professional training are more efficient than some who have earned academic degrees.

These are days of the greatest responsibility and opportunity. Teachers are responsible for the preservation and improvement of civilization. Mrs. May E. Richmore, speaking recently before the New York Teachers' Association in Potsdam, discussed the responsibility of the teacher in improving the administration of the school system. She issued a direct challenge to the teachers, suggesting that they seek to improve the system by (1) making the school better, (2) by making the community better, (3) by improving the profession, and (4) by creating leadership toward improving the world at large. She emphasized that the teacher who fully measures up to the responsibilities which society has placed upon the schools will need to be both technically expert and personally adequate in all relationships.

Commenting on the teachers' responsibility for pupil conduct, Mrs. Richmore said that her influence should go with them to and from school and that her teaching should be such that it will enable pupils to adjust themselves to any school or community situation.

The teacher is also responsible for the equipment and for the care given it. School officials usually enjoy purchasing school equipment, if assured that the teacher will make good use of it, and see that it is properly cared for.

Another responsibility of the teacher is that of securing regular attendance. The chief device for securing good attendance is keeping the pupil interested in his work so that he will not desire to miss a day of school. Teachers can do much to eliminate absence through illness by helping pupils to maintain a high standard of health. Slow progress in school and low marks are other reasons for nonattendance. The pupil who fails, or who is not getting along well in school, is likely to become discouraged and to develop an inferiority complex.

Another responsibility is discipline. Planned work is the keynote to discipline. A conference with the parent will often solve a most difficult disciplinary problem.

The teacher is responsible for the making of accurate reports. Promptness in sending reports is very necessary. A teacher who neglects to send a requested report when due may upset an entire school.

A teacher is obligated to measure up to the high standards of the teaching profession. No board will retain a teacher who does not measure up to the standard.

The last and most essential duty of a teacher is preparation for professional growth. Every teacher owes it to herself, to the school, and to the community to increase her professional capital by daily study of both content and its organization for use in school. The wise teacher preserves the results of her own experience through reading and through observation gained from experiences with other persons. Extension and correspondence courses and summer schools are other means for meeting teachers' needs and ambitions. The teacher who does not keep up with the periodical literature of the profession is neglecting specific advantages in relation to her daily work, and becomes isolated from the current professional thought about the larger issues in education. Observation of classwork holds a mirror to the teacher's own technique.

### CELEBRATE 300 YEARS OF AMERICAN HIGH SCHOOLS

The public schools of the country will celebrate in February, 1935, the 300th anniversary of the first high school, which was established in February, 1635. The celebration, which will begin in February and continue through June, will be more than a celebration of the accomplishments of the past three centuries in secondary education. The occasion will be more significant as it deals with the future as well as the past. At the present time, the country faces no more momentous problem than the decision of what is to be done for the youth who is out of school and out of work. This problem is one of vital import to society as a whole and provides a tremendous challenge to the secondary school as the most promising agency which society has available for dealing with it.

President Franklin D. Roosevelt, in a letter addressed to the office of the secretary of the National Education Association, has commented on the importance of the event and its import to the young people in the high schools of the country. The letter reads as follows:

The year 1935 ushers in an important anniversary

in the life of the American people. Three hundred years ago the first American high school—the Boston Latin School—was founded. It was established in 1635 only fifteen short years after the landing of the Pilgrims. From a small beginning with one instructor and a handful of students has grown the splendid service now provided for more than 6,000,000 young Americans by 26,000 public and private high schools. These schools are developing the most precious resource of our nation, the latent intelligence of our young people. It is worth noting that social progress in the United States is following swiftly on the heels of the remarkable expansion of educational opportunity at the high-school level.

I hope that the young people of every high school in the United States will celebrate this three-hundredth anniversary. I hope they will celebrate it in a manner which will bring vividly before parents and fellow townsmen the significance, the contribution, and the goals of their schools.

### COVINGTON SCHOOL-ADMINISTRATION POLICIES

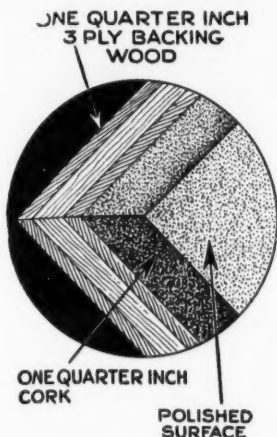
The board of education of Covington, Ky., has issued a public statement, which sets forth the policies and procedures which have guided that body, in the following language:

1. The board has an accounting system which readily reveals the source of every dollar received and the cause for the expenditure of every dollar.
2. The board takes advantage of all discounts offered for early payment of bills.
3. A properly balanced budget is adopted and adhered to.
4. Each member of the board receives a written financial report each month covering receipts, expenditures, and unencumbered balances.
5. Standards have been determined for the use of instructional supplies.
6. Kinds of supplies have been reduced to a minimum.
7. Teachers urge economy in the use of materials.
8. Grades and sections are combined so that teachers have full loads.
9. Teachers and principals are instructed in the economical use of heat, light, water, and supplies.
10. Materials purchased are properly checked with invoices and requisitions when delivered to storeroom and buildings.
11. Janitors are required to do minor repairs wherever possible.
12. Electric-meter installations have been checked and changed so that combination rates may be secured.
13. Funds of the board are adequately protected against loss by proper bond given by the officers of the board's bank.
14. High qualifications have been set as standard for all employees.
15. Tuition rates for nonresident pupils have been increased to amounts commensurate with cost of instruction.
16. Complete inventory follow-up on buildings, equipment, and supplies has been inaugurated.



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Your bulletin boards will not only look well; they will last longer and cost less in the long run, if you buy good ones.

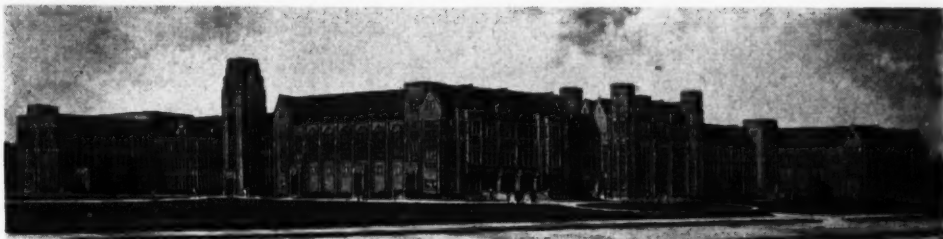
That's why it is more economical to use Duplex. This bulletin board is made of resilient, compressed cork of high quality, a full 1/4 inch thick, securely anchored to a sturdy 3 ply wood panel. The back of this panel is thoroughly waterproofed.

Duplex, with its overall thickness of 1/2 inch, may be attached directly to the studding or grounds, and the walls back of it need not be smoothly finished. Colors, tan and dark green.

Further information including specifications, sketches of architects' details, and samples sent without obligation. Write today.

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### Lane Tech Buys Over A Carload of Duplex!

(See Story on Page 25 of this issue)

Lane Tech of Chicago is one more school for which Duplex Bulletin Boards and Slatoplate Blackboards were selected.

This unusually large installation, over 15,000 square feet, was made because Duplex Bulletin Boards offer finer surface and longer life.

Slatoplate Blackboards, too, are used at Lane for all partition and sliding door blackboards because they possess lasting qualities, contrast chalk marks perfectly, and are fully guaranteed.

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Through the use of Solid Duracrome Metal, Esterbrook has combined fountain pen convenience with steel pen efficiency. The Re-New-Point fountain pen gives you the same uniformity, versatility and writing accuracy that has made Esterbrook steel pen points the standard in penmanship classes. Leading educators recommend Esterbrook Re-New-Point Fountain Pens.

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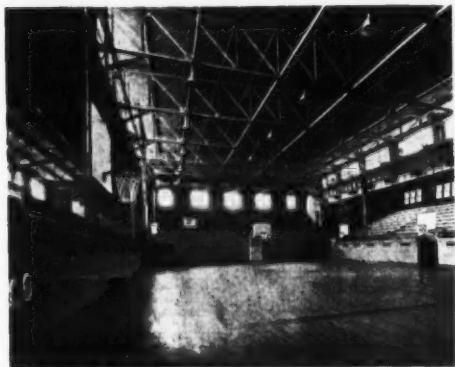


RE-NEW-POINT FOUNTAIN PENS AND STEEL PENS



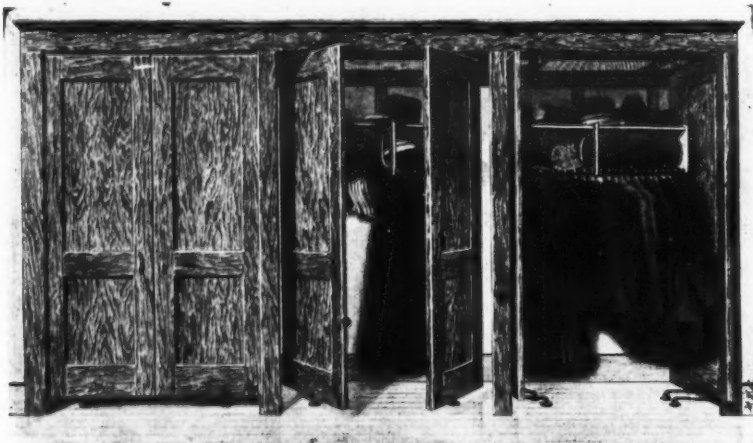
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### Class J

equipped with either "Floor" type (as illustrated) or "Jamb" type hinges. This is Class D wardrobe if made with flush doors.

## CLASSROOM WARDROBES High in Quality — Low in Cost

This type occupies a recess flush with the wall. Plaster back and ends. No partitions, but with mullions between pairs of doors. Wire mesh ceiling. Blackboards if required.

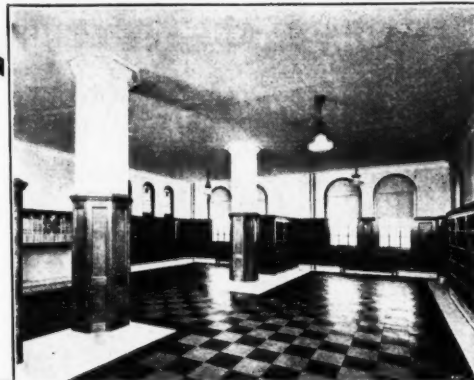
The "Vanishing Door" hinges on which the doors are hung are made with double pivoted arms and swing the doors back into the wardrobe entirely out of the way. Simple—trouble-proof—and last as long as the building.

Wardrobes are furnished complete in the knock-down, with all woodwork cut to size, and only need to be nailed in place. The hinges are easier to put on than common butt hinges. The cost of installation is small.

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Use VESTA-GLOSS on all types of floors—and on radiator shields, window sills and other surfaces needing protection.

Write for a copy of FLOOR FACTS, a helpful booklet on floor maintenance.

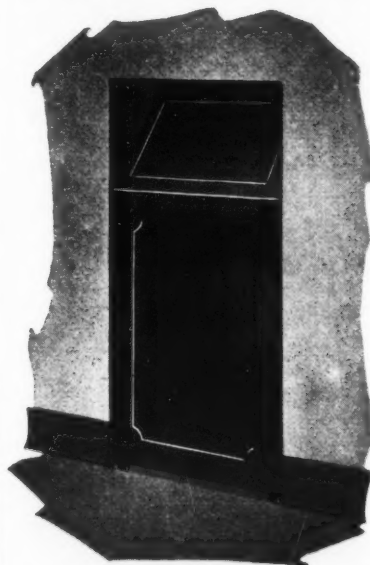
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## Solar Waste Receptacles

### Recessed Model

If you plan a new building, ask your architect to leave recesses for these modern, efficient containers.

Once in the wall, they become a permanent part of the building. There is no need to remove them when depositing waste or emptying contents.



The top opens at a touch and silently closes again. Waste is always out of sight. To empty, just pull the front panel forward and remove the burlap bag with its accumulated waste.

Heavy steel, braced and reinforced non-rusting brass feet. Finished in gray, and white.

We have other models for your present buildings.



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**SOLAR-STURGES MFG. CO.**  
MELROSE PARK, ILLINOIS



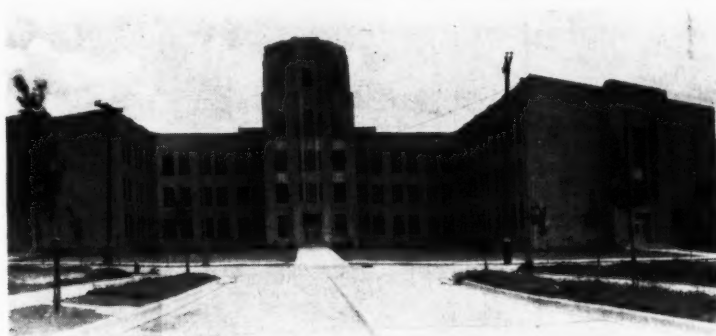
# IN CHICAGO - and - IN MILWAUKEE

NEW LANE TECHNICAL HIGH SCHOOL

NEW RUFUS KING HIGH SCHOOL



Architect: John C. Christiansen Board of Education, Chicago



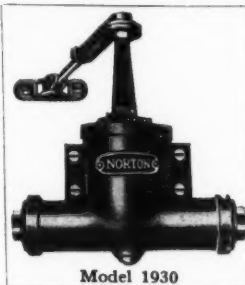
Architect: G. E. Wiley, Board of Education, Milwaukee

## NORTON DOOR CLOSERS

ARE GIVING POSITIVE AND COMPLETE CONTROL OF SCHOOL DOORS

The NORTON Door Closer is designed to control the door from the time it starts until fully closed. There is no initial rush and sudden stop to cause strain on hinges. The rack and pinion movement of the NORTON Closer gives absolute control.

When equipped with the Holder Arm all hooks, blocks or other devices are eliminated. Adjustment of the nut (shown at elbow of arm in illustration)



Model 1930

tion) enables you to determine at what degree door is to remain open. When door is pushed back to that point holder operates. A slight pull or push releases it.

In planning your school buildings at this time send for a copy of our catalog which will show a NORTON for every type of school door. Write for a copy today.

## NORTON DOOR CLOSER COMPANY

CHICAGO — DIVISION OF YALE &amp; TOWNE MANUFACTURING COMPANY — ILLINOIS

"Door Closers For All School Doors"

### THE NEW YORK STREET GRADE-SCHOOL BUILDING, LAWRENCE, KANSAS

(Concluded from Page 49)

of haydite concrete block in coursed ashlar, painted and finished with a two-tone glaze, and the exposed concrete joists and girders of the ceiling are finished with a dashing of very coarse Portland cement stucco, painted. Ceilings in classrooms and special rooms and the principal's office are acousti-celotex blocks, attached to strips fastened to the concrete joists. Corridors and main toilet rooms have a 5-ft. glazed-tile wainscot. A tile wainscot also is placed below all blackboards and tackboards. All blackboards are of slate. Plaster is Keene's cement. Floors of all classrooms, special classrooms, offices, and corridor are of linoleum, laid directly over a concrete topping. The assembly room has a maple floor, and the stage has a pine floor. The floors of the vestibules are of tile, and the main toilet rooms are of terrazzo. The interior trim and doors are of red birch.

All classrooms and offices are provided with indirect lighting. Each classroom has six lighting fixtures. Automatic clock and fire-alarm systems have been installed.

The boiler room and coal bin are located under the sixth-grade room and a portion of the corridor. The boiler room has a thermal insulation on the ceiling. The boiler is automatically fired with a stoker. Automatic hot-water heater and thermostatic-control equipment are in the boiler room. The heating system is vacuum steam. The assembly room is heated by unit heaters. Toilet rooms are vented into the attic space, which is ventilated by louvers in the cupola. Water closets are of children's sizes.

All classrooms are equipped with individual

desks, tables, and chairs of metal, with wood tops and seats, and each classroom has a special reading table. All classrooms and special rooms are equipped for 38 pupils, with the exception of the small special classroom at the south of the building, which is equipped for 20 pupils. The windows of the kindergarten and the special room are of ultraviolet-ray glass.

The building was erected as a PWA project and was completed in September, 1934, fully equipped with new and modern furnishings throughout.

The building contains approximately 379,500 cubic feet, and cost 23.8 cents a cubic foot, or \$90,900 in round numbers, including the architect's fees and all fixed equipment. The

cost of movable equipment, such as desks, chairs, tables, etc., also including the architect's fee, is approximately \$6,400. The cost of grading, sidewalks, and landscaping, including the architect's fees, was \$6,150.

### SCHOOL-BOND SALES

During the month of November, 1934, the grand total of school-bond sales reported was \$8,368,444. Of these, \$7,330,644 were reported for new school-building construction. Refunding bonds in the amount of \$512,500 and funding bonds of \$138,000 were recorded, and miscellaneous bonds in the amount of \$387,300 were reported.

The largest issues for new school-building construction were New York State, \$1,502,900; Pennsylvania, \$1,358,630; Texas, \$1,534,000; Illinois, \$466,000; and Utah, \$400,000.

NEW YORK STREET GRADE SCHOOL BUILDING, LAWRENCE, KANSAS  
Thomas Larrick, Architect and Engineer, Lawrence, Kansas.



**VUL-COT**  
-the National Wastebasket  
**Guaranteed 5 years**

There's a reason why 85 per cent of America's schools have, for more than 20 years, standardized on Vul-Cot. Vul-Cot is made of National H-A-R-D Vulcanized Fibre—will not dent, bend, corrode or scratch like metal; cannot crack, split or splinter like wicker. Vul-Cot in olive green, maroon-brown, oak, walnut and mahogany.

At Stationers and School Supply Houses

**NATIONAL VULCANIZED FIBRE CO.**  
Wilmington, Delaware

## Stage Equipment

**Velour Curtains—Draperies, Scenery and Rigging Equipment of the Highest Quality.**

**Service and Installation by  
Experienced Personnel**

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**Twin City Scenic Company**

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Minneapolis, Minn.

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Detroit, Mich.

## "GOODBY, Inky Spot"

Yes Sir! It's  
**GOODBY and  
GOOD RIDDANCE**

to ink spots on schoolroom  
floors and desks, when you use



REG. U.S. PAT. OFF  
**Klemm's**  
**Magic Ink Remover**

TODAY'S MOST MODERN METHOD

Quick... and thorough! Klemm's Magic Ink Remover *does* remove those pestiferous ink spots in the twinkling of an eye. Just a minimum of "elbow grease"...NO sandpaper, NO acids, NO scrubbing.

Order through your jobber; or write direct  
for sample if he isn't supplied.

**KLEMM'S**  
**Liquid Bowl Cleaner**  
Removes scum,  
filth and  
discoloration from  
toilets and urinals.



**KLEMM'S**  
**Odorless Renovator  
and Disinfectant**  
Destroys germs  
that cause  
offensive odors  
and stains.

REG. U.S. PAT. OFF



No. 49—Rests flush with desk top



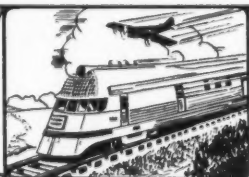
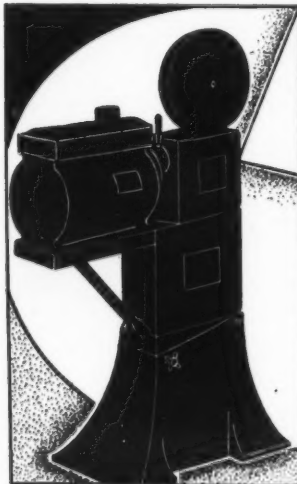
No. 48—Has flange. Sizes to fit  
present holes in your desks.

Here is one place where EVERY  
school can MODERNIZE

You don't have to hold a special election or float a bond issue in order to re-equip with these practically indestructible inkwells. You make them pay for themselves in reduced replacement

cost and lower ink bills. Ask for free sample and remarkable offer to equip one room free for 90 days. SENGBUSCH SELF-CLOSING INKSTAND CO., 118 Sengbusch Bldg., Milwaukee, Wisconsin

**SENGBUSCH**  
**SCHOOL INKWELLS**

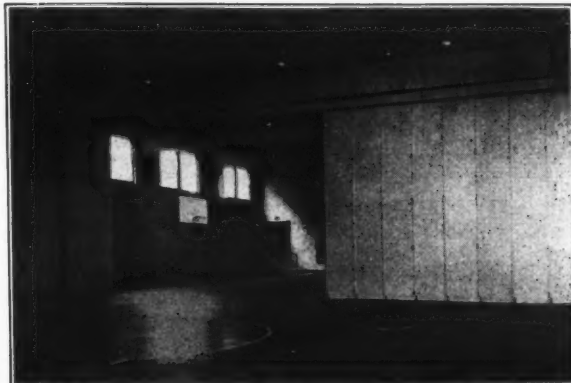


**DeVry**  
THE OLD MUST MAKE  
WAY FOR THE NEW

There is a definite place for one or all of three different types of sound equipment in the modern school. DeVry is the only concern that manufactures all types—each a leader in its respective class. Our local representative can help you select the proper equipment—16 or 35 mm., portable or theatre type.

Liberal Terms To Schools Write Dept. P

Herman A. DeVry, INC. 1111 Center St. Chicago



**HORN Folding Partitions** make possible double gymnasium arrangements (see above picture). Think of it!—for the same price as ordinary wood doors you can now have a complete 'tailored' Horn installation, engineered to your needs, including such outstanding Horn features as soundproofing, mechanical operation and no floor track. Write for illustrated literature. Horn Folding Partition Co., Fort Dodge, Iowa. Sales offices in 36 cities.



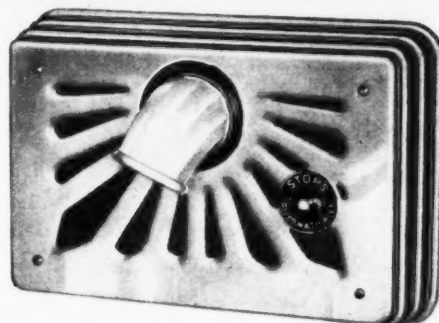
## "Washroom Control" with SANI-DRI Electric Drier

The function of SANI-DRI is to furnish a continuously dependable, sanitary drying service. It does that well. But SANI-DRI does more than that—it provides what users term "washroom control". Drying service cost, washroom cleanliness, sanitation and waste are controlled where SANI-DRI is installed. Users

report that invariably complete installations of SANI-DRI result instantly in cleaner washrooms because of the disappearance of towel-litter; sanitation because there is no interruption of service due to "empty towel cabinets". Towel-bill savings of 60% to 90% soon write off the moderate cost of SANI-DRI and these savings continue year after year.

We invite inquiry relative to the application of SANI-DRI to the solution of your washroom problem.

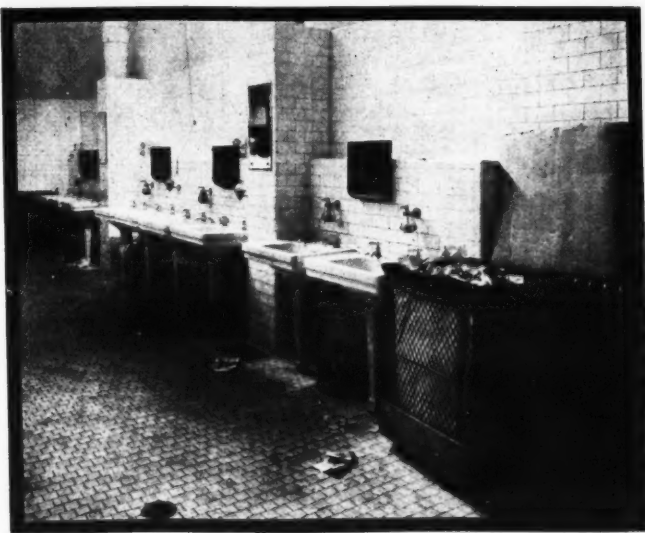
**Chicago Hardware Foundry Co.**  
North Chicago Sani-Dri Division Illinois



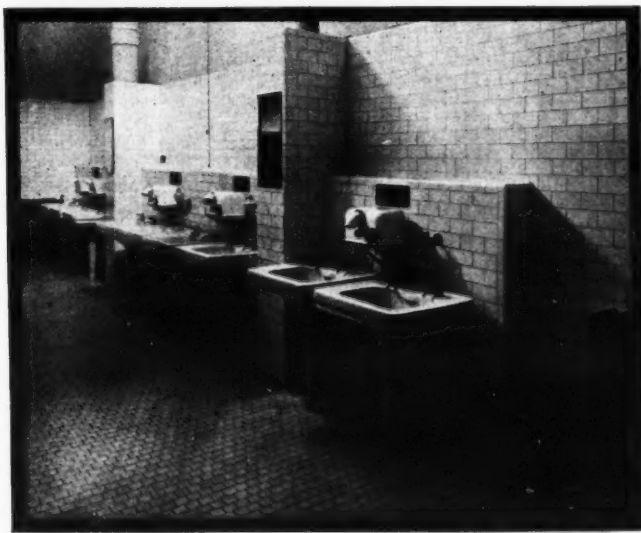
The new "RW-F" model for semi-recessed installation has an attractive grilled front and is supplied with either foot-pedal control or, as here illustrated, with push-button control and automatic cut-off.

### THE PICTURES BELOW TELL THE STORY OF "WASHROOM CONTROL"

A typical washroom before installing SANI-DRI—untidy, soiled-towel receptacles awaiting emptying, towels littering the floor.



The same washroom after installing SANI-DRI—neat, no soiled-towel receptacles, no towels littering the floor.



## SCHOOL ARCHITECTURE THAT WILL LIVE

(Concluded from page 16)

to sit under a master teacher, and incidentally instruction costs are reduced.

Clever minds have developed ingenious, artistic, and practical methods for the care of clothing, books, and student material. Modern invention and skill make it possible for children to be fed with nutritious food at nominal cost. The old regimented school furniture is fast disappearing. In its place we have well-designed, scientifically built, movable seating equipment, thereby furthering elasticity in the educational program.

Luminaries with powerful diffusion have conquered dark days and opened the schools for night study and recreation.

Research and experiment on the part of heating and ventilating engineers have resulted in greatly improved air-conditioning and plant cleanliness.

### THE GROUNDS

No one item of the school-building problem offers more esthetic value at reasonable cost than ground development, yet none is more generally neglected.

Children of the one-room schools continue to play on a meager, barren, uneven spot of mother earth which appears to have been separated reluctantly from the hundreds of adjoining acres under careful cultivation.

There are, it is true, some notable examples of school-ground planning and planting, and there are other properties where creditable improvement has been made, but much is still to be desired. Soil is easily prepared and grass is inexpensively sown. Trees, shrubs, and flowers can be transplanted from the fields and forests near by. Nature-study classes under school leadership and with a little financing by the

board of education, could accomplish wonders in decorative effect.

No finer play surface can be provided than turf on properly prepared, well-drained soil. This type of playground is enjoyed by the children of the private schools, while too many others equally worthy still spend their recreation periods on play areas absolutely bare or sprinkled with a layer of cinders.

### APPRAISAL

Parents who tend their lawns, hedges, and shrubs with infinite care, who build rockeries and win garden contests, who are even willing to be taxed so that their community may boast beautifully planted and paved highways, soldiers' monuments, and municipal parks, pass the school grounds without experiencing a feeling of responsibility or a sense of shame.

Appraise your children's school home now, measuring it by esthetic and educational standards, for "the public school is the positive and definite measure of a communities' awareness of parental and civic responsibility and obligation."

### BOARDS OF EDUCATION

♦ Yonkers, N. Y. The public-school system of the city was particularly hard hit during the depression, due to the fact that it is located in an industrial city, where most of the industries were either shut down entirely, or were working on part time. During the past year, taxes were collected slowly, some were delinquent, and loans were impossible to obtain.

The city has taken steps to obtain a loan of three million dollars. If the loan is granted, all outstanding bills of the schools and back salaries will be paid to date.

♦ Boulder, Colo. Upon the recommendation of Supt. V. M. Rogers, the board of education has effected a revision of its administrative procedure after much careful study and planning. The plan includes a revision of the duties of the board so that it is now a policy-forming body, rather than a group for supervising administrative detail. This has been partially completed by action of the board in eliminating committees, in approving a new bookkeeping system

and a detailed budget, and in approving a plan of reorganization for the janitorial staff. Matters still to be acted upon are the adoption of a new plan of handling budgetary funds, a method of approximating school expenditures, and the adoption of a voucher system and method of passing on bills.

♦ An Association of School Boards has recently been organized under the name of the Upper Peninsula Division of the Michigan Association of School-Board Members. Mr. Noel Turner, of Vulcan, was named president; Mr. A. C. Hanson, of Negaunee, vice-president; Mr. James P. Jones, of Gladstone, secretary; and Mr. G. H. Roberts, of Hancock, treasurer.

♦ Omaha, Nebr. The board of education has adopted a resolution, calling for the elimination of secret societies in the high schools by September 1, 1937, and forbidding fraternities and sororities from receiving any new pledges. The board's action ends a controversy which has risen periodically over a period of many years.

♦ The civil court at Youngstown, Ohio, has recently ruled that the board of education is a governmental function and may not be sued without permission of the state legislature. The ruling was given by the court in granting a plea for a directed verdict in the board's favor in a damage suit filed by Zora Rankin, a school employee, to obtain damages of \$15,000 for injuries received in a fall down a flight of stairs in the administration building.

♦ Indian Orchard, Mass. The school board has given notice that it will continue its policy of last year of not issuing warning signals for the closing of schools on stormy days. Under the system, the schools are kept in session regardless of the weather and parents use their discretion in sending children to school.

♦ Fewer teachers, with relatively higher salaries, was advocated recently before a convention of the New England Association of School Superintendents at Boston, by C. E. Fraser, treasurer of the incorporated investors. Mr. Fraser said he believed a good teacher can handle a class of 40 students with better results than can a poor teacher with a class of 20 pupils. He criticized school-board members who, on rising to higher offices, promptly forget all about education and its problems.

♦ Kansas City, Kans. A 5-per-cent restoration of salaries for teachers and school employees will become effective on January 1, 1935. Eighteen teaching positions were restored at the opening of the school year in September.

## PREVENT SLIPPING ACCIDENTS

on Stairs and Other Walkways

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Abrasive Metal Treads

For New and Worn Steps

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Durability Proven in Severest Service  
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## National School Desks Have Proven Their Worth



No. 183  
Adjustable  
Desk

National Desks are designed and constructed with the health of the child in mind. The durability of the desks and seats, and the adaptability of the desks to proper room layout and seating arrangements are also carefully and scientifically considered and included. Write us for complete seating catalogue.

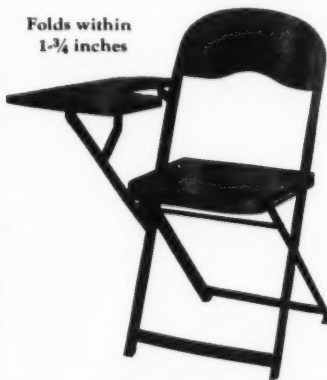
**NATIONAL  
SCHOOL EQUIPMENT COMPANY**  
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turn any available space into a lecture or recitation room.

Folds within  
1-3/4 inches



This new product fills a long felt want. It is a durable comfortable chair with a tablet arm 11 1/4" x 24 1/2".

Ask for catalog and special introductory price.

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**CIRCLE A BLEACHERS**  
For Indoors or Out—



Grandstands or Bleachers — of steel or wood — can be used in the "gym" or on the playing field. Safe — easily handled — economical.

Also — Circle A School Wardrobes, Folding Partitions, Rolling Partitions, Sectional Partitions, Sectional School Buildings. Write for detailed information.

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625 South 25th Street • Newcastle, Indiana

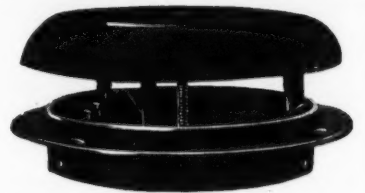
**AIR**— Warm or cool, evenly distributed—that is the job

## NU-NOTCH MUSHROOM VENTILATORS

will do in  
school auditoriums



**KNOWLES MUSHROOM VENTILATOR CO.**  
41 North Moore Street NEW YORK, N. Y.



Furthermore, the definite set adjustment cannot be tampered with except by the holder of the new, special-locking key.

Supplied in five diameters with Dome or Flat Tops and ten recessed notches for air-regulation.

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WRITE for full information

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SAFE . . . . Poured concrete tread on rigid steel frame — 29" wide, unobstructed. . . . Local equipment, materials and labor used, thus benefiting your community.

## HERE IS A NEW AMERICAN PRODUCT

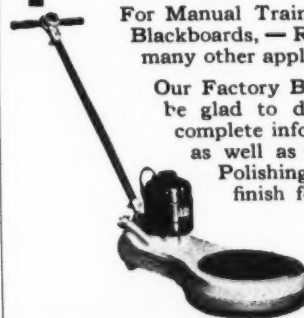
that will help you economize!

### THE AMERICAN SANDERPLANE NO. 2

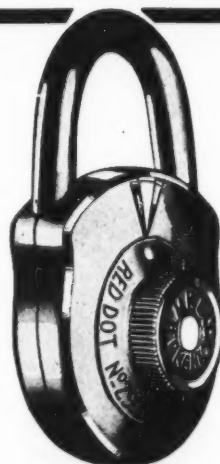
FOUR TIMES FASTER THAN HAND PLANING

For Manual Training Work, — Resurfacing Blackboards, — Refinishing Desk tops, and many other applications.

Our Factory Branch Office near you will be glad to demonstrate and furnish complete information on this machine, as well as on AMERICAN Floor Sanders, Waxing and Polishing Machines, and Pentra-Sea the wonderful new finish for floors.



**THE AMERICAN FLOOR SURFACING  
MACHINE COMPANY**  
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## Inefficient Locking Devices Are Poor Economy!

Worn, old padlocks afford no security. They are a liability for school and student alike. Why not replace them NOW with a complete installation of modern, ULTRA SECURE Miller RED DOTS. Miller keyless locks for over 45 years have been the standard for school equipment. They have everything the school lock needs. Send for samples today. Inquiries are invited.

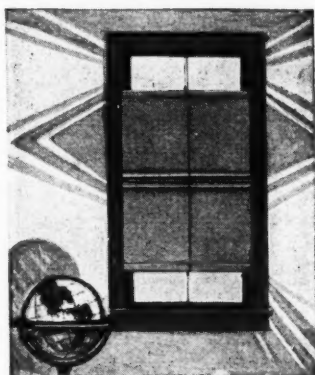
No. 29-S — Same lock as No. 29 in steel case. Neat appearing, cadmium finish. Automatic locking is an important feature.

**RED DOT No. 29**  
Die cast case. Cadmium lacquer or chrome finish. Handsome appearance.

**The J. B. Miller Keyless Lock Co.**  
200 LOCK ST. Established 1889 KENT, OHIO



## Replace Worn Out Shades with Draper SIGHT SAVING Shades



Draper Adjustable School Room Shades keep the sun OUT but let the light IN. The patented Draper pulley bracket allows easy shade removal for cleaning.

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SPICELAND

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Standard Film



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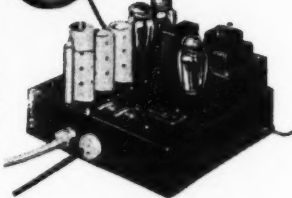
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\$1000 or more.

May be used with  
one or more  
speakers.



Write today for full details.

**THE HOLMES EDUCATOR**

**HOLMES PROJECTOR COMPANY**

1812 ORCHARD ST.

CHICAGO

### AIR CONDITIONING AND THE CHIMNEY ACTION OF SCHOOL BUILDINGS

(Concluded from Page 24)

specify the quality of indoor air that air conditioning must maintain. The best that the physician has been able to do has been to urge window ventilation. Which is equivalent to the cry to reopen the closed town wells, when early water-supply practice tapped the wrong source.

Municipal legislation to prohibit or to limit the use of bathtubs, seriously proposed in Boston, Philadelphia, and Cincinnati, could not have been urged without the support of responsible physicians. But in fairness to the physician, the distinction between modern plumbing that he now urges, and what he formerly opposed, must be well understood. The air-conditioning engineer has much to learn from the physician's selling effort. The undertaker and the monument maker bury the physician's mistakes, while those of the engineer dog his days. This only shows that the physician is a better salesman than the engineer. Where the engineer seeks to sell the extent of his knowledge, with consequent inevitable disappointment from unwarranted expectations, the physician makes a virtue of his own lack. This fixes the patient's attention upon their mutual risk. This is only a common-sense application of a fundamental law of business, viz.: *get adequate pay for every responsibility assumed*. When the engineer learns from the physician how to apply this law, he will command the same respect in his honorable profession that the physician has so justly earned.

#### Why Should School Administrators Demand That First Things be Put First in All Air Conditioning?

If this discussion has succeeded in its object to so elevate viewpoint that it rises above the

ruts of custom in current air-conditioning practice, this question also answers itself. School administrators suffer from the failure to put first things first, in all air supply, in the same way that whole communities were afflicted in the early water-supply practice before bacteriology taught the relation of cause to effect.

But school administrators too, have some first things to put in their proper place, before they make this demand upon the engineers. When school administrators do this, it will be obvious to them that the mistaken demand for window ventilation falls in the same class as the demand to reopen town wells when early water supply had tapped contaminated sources. The urgings for window ventilation upon any basis of economy are as misguided as any recommendations to revert to the abandoned out-of-door telephone-booth sanitary in order to save the cost of modern plumbing.

When first things are put first, and indoor dust is regarded as air sewage, *real* air conditioning takes rank with modern plumbing. Then if educators are truly viewed in their real function as the community brains, to teach us what to want; if business is held to be the community lifeblood, to supply those wants at a profit that will maintain the entire community organism in healthy operation; and if politics, the science of human relations as applied to government, is regarded as the community digestive tract whose true function is to maintain the healthy operation of business and education, it will become more evident than it now is, that school buildings must be made the best models of housekeeping in their respective communities.

When school buildings fall in any degree short of being such models, it only demonstrates that business men who pay the bills, have failed to pick the right kind of educators.

### COMPARING SCHOOL-BUILDING COSTS

(Concluded from Page 19)

ing from 1917 to 1923, with the exception of two contracts which are reduced to meet the base level; these contracts are also increased to meet the 1926 base. The third set of building contracts shown are those for Steuben Junior High School, let within a two-year period. These are all reduced to meet the base level. After this building was started, a minimum wage resolution was adopted by the board of education. The graph indicates the adjustment necessary as a result of this resolution. Table III is a table showing in detail the cost of this building and including the correction in the ENR Cost Index Number required by the minimum-wage resolution. The cost given in Tables I and II for the Walker Junior High School includes the cost of a fireproof wing, built as an extension to an old nonfireproof elementary school. When the junior-high-school building was erected, the old elementary school was razed, and its new fireproof wing was included in the new junior high school.

The adjusted cost method based on the building area devoted to instruction as herein proposed is not suggested as a perfect method. It is, however, a means of comparing the several buildings of a series or those constructed during a term of years. The unit result secured while expressed in the terms of dollars would be just as serviceable if considered as an abstract number. It is an index number and should be so considered.

• SUPT. G. F. LOOMIS, of Kenosha, Wis., has been re-elected for a new three-year term. Mr. Loomis went to Kenosha in 1921.

• DR. CLARENCE R. RARICK, of Fort Hays State College, Hays, Kans., has been elected president of the College, to succeed the late W. A. Lewis. President Rarick went to Fort Hays College in 1919 as professor of rural education. He had been acting president since October, 1933.

• J. C. MITCHELL, formerly superintendent of schools at McCook, Nebr., has accepted the position of State Director of Secondary Education.

# School Architects Directory

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## RECREATIONAL PLANNING IN RELATION TO SCHOOL- PLANT PLANNING

(Concluded from Page 38)

scrutiny. Unless it can be shown that various features are to receive a high degree of use,

their approval is likely to be questioned. Few educational authorities fail to realize the importance of the building features which lend themselves to recreational use. One of the most effective means by which they can assure the provision of these features in new school build-

ings is by giving young people and adults an opportunity to utilize similar facilities in existing buildings. There is no better way of selling the value of a workshop, a gymnasium, or a little theater to the public than through permitting the public to use these facilities. Therefore it seems as though school authorities would recognize in the wider use of the school plant a means of assuring increasingly adequate facilities for their own school program.

The following are a few suggestions as to the planning of buildings so as to make them serve most acceptably for community recreation use. One reason people are not attracted to many schools in which centers are carried on is the lack of atmosphere. If the entrance to the school were developed somewhat as a lobby, with a few easy chairs and potted plants, and possibly if a piano stored in a nearby room could be placed in the lobby during the evening when the school was in use, the drawing power of the building as a social center would be greatly increased. Another valuable feature is the provision of a check room. Persons coming to a center for the first time like to hold on to their hat and coat and often are looking for an excuse to slip out, whereas if they can be relieved of their hat and coat they are likely to be put in a mood which will make it easier for them to fit into one of the activities.

Mention has already been made of the importance of shutting off the auditorium from the rest of the building in order that it may be used in the evening without permitting access to other parts of the building. If the auditorium is to be available for multiple use, including social recreation or community dances as well as for entertainment, music, and dramatic productions, it is important that the seats be removable and that ample space be provided near by for their storage. If it is intended that dramatic activities be featured in the recreation program, the auditorium should be equipped with a stage of adequate proportions, suitable essential equipment, and with properly located and equipped dressing rooms, also room for the storage of scenery and other stage equipment. A near-by workshop for designing and making scenery and costumes is exceedingly valuable.

Except for the auditorium the school gymnasium has probably been opened to community use in more cities than any other feature. Its use requires that locker rooms and showers be also made available. Therefore careful planning of these features is important so as to limit the range of persons using them during nonschool hours. Special lockers may need to be provided for community groups. Hot water should be made available for shower baths. The swimming pool presents several problems not only in operation but in original construction. Because of the additional use, heavier demands are made upon the purifying equipment. Perhaps community use would justify or demand the construction of a larger pool. It makes increasingly important the exclusion of nonbathers from the pool area. It is often impossible to correct bad conditions, or to expand inadequate facilities, once the building containing them has been constructed.

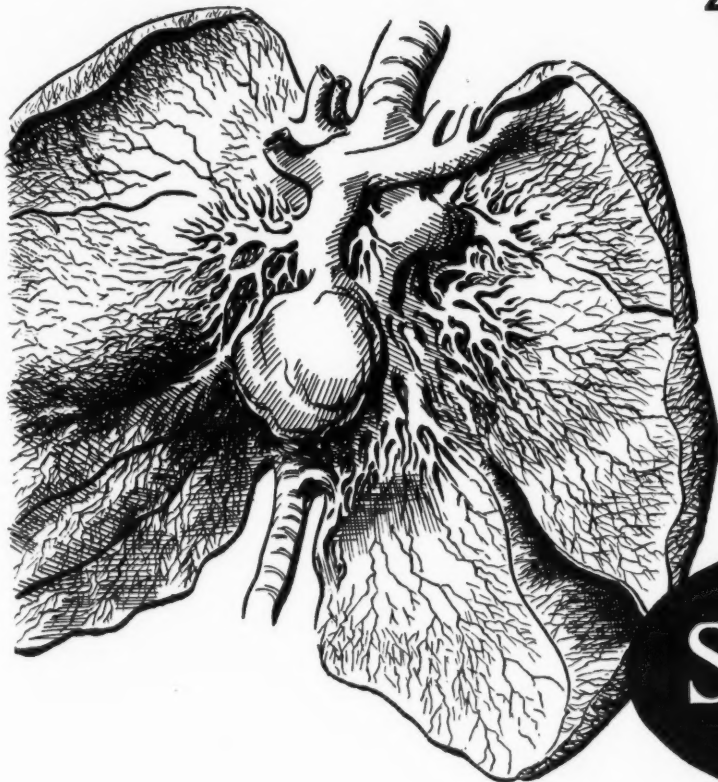
## Correlation of Outdoor and Indoor Facilities

At this point attention might be called to the importance of relating outdoor and indoor recreation facilities. Groups using the playground or playground should have access to the toilets and showers within the school building. Therefore these facilities should be placed where they can be reached directly from the recreation area, preferably on the ground floor, or in the basement. During periods when school is not in session, corridors leading to other



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parts of the building should be shut off by folding gates installed for this purpose.

Sometimes clubrooms and large playrooms are provided in the school building. These are useful for extracurricular activities of school clubs, and for indoor play by school groups during inclement weather. They also serve the community groups which make use of the building if a recreation program is carried on. If placed near the other facilities serving playground groups they can be used to advantage during nonschool periods for play activities, especially when weather does not permit outdoor play. Adult groups utilize them for social and club activities. They should not be placed in the basement unless high, well-lighted, well-ventilated, and attractive rooms are possible in such a location.

### Use of Special Rooms for Group Activities

Of equal importance with the community use of the auditorium and the physical-education plant is the growing tendency to make available to community groups such facilities as the school library, manual-training shops, domestic science, music, and classrooms suited for club and small-group activity. Two important factors in such use are the location of rooms and their equipment. It is advisable in order to facilitate supervision and reduce heating and lighting cost for such rooms to be grouped on the ground floor, preferably in one wing or section of the building. Toilet facilities should be readily accessible. In the case of some of these rooms it may be desirable to provide special tools or equipment for the use of community groups, and where this is done suitable cupboards are needed. The tendency toward an informal school program in the lower grades lessens the problem of community use, because the movable chairs and desks make

the classrooms suitable for group activities, whereas the old-style, fixed small desks were utterly unsuited for such use by adults.

### Co-operative Planning for Recreation Needs

It is recognized that there are many problems to be solved before the community use of such facilities can be worked out to the satisfaction of both school and recreation authorities. The co-operation of both educational and recreational experts is essential in developing methods and standards. The situation demands that solutions be worked out. Modern educational programs require these varied features and facilities; increasingly demands are being made that they be provided also for young people not in school and for adults. Public finances do not seem sufficient to provide separate facilities for both groups. Therefore the answer seems to be found in joint planning by school and recreation authorities—and perhaps in joint operation—of a comprehensive plant, designed to serve both school and community indoor recreation needs. Unless school authorities are ready to adjust their conception of the function of the school plant so as to meet the new conditions, it may become necessary to work out some other method for solving this problem of training for and recreational use of leisure time.

### GRANITE FALLS SCHOOL BUILDING ACHIEVES COMPLETENESS AND FLEXIBILITY

(Concluded from Page 38)

dimensions of the room are 80 by 38 by 32 feet. The gymnasium constitutes the stage for the auditorium. This arrangement of the gymnasium and the auditorium is quite generally accepted in Minnesota as a desirable feature.

Ample provision has been made for cafeteria service, the room for this purpose being 80 by 32 feet 6 inches.

In addition to the rooms referred to, the building contains the following:

Administration suite . . . . .	1,572 sq. ft.
Kindergarten . . . . .	880 sq. ft.
Eleven grade rooms . . . . .	7,230 sq. ft.
Six recitation rooms . . . . .	4,185 sq. ft.
Two laboratories . . . . .	1,821 sq. ft.
Home economics . . . . .	1,753 sq. ft.
Agriculture and industrial arts . . . . .	3,198 sq. ft.
Commercial department . . . . .	1,577 sq. ft.

The school site contains an athletic field which, together with play space for elementary-school pupils, contains two and one-half city squares. The building is not as yet used to its full capacity, but there are no vacant rooms for instructional purposes. It is interesting to note that one room is used for adult education.

The school district has an assessed valuation of \$1,469,980, and is in good financial condition. The cost of the building as itemized:

General contract . . . . .	\$156,741
Heating, ventilation, and plumbing . . . . .	39,476
Electrical . . . . .	5,832
Roofing . . . . .	5,986
Extras . . . . .	8,716
Architects' fees . . . . .	10,837

Total . . . . . \$227,588

♦ Millbury, Mass. The city has the distinction of being the first to authorize fingerprints of school children. A total of twelve hundred children in the schools will have identification marks taken as a safeguard against kidnapping and accidents. Letters were sent to parents asking their co-operation in the plan.

♦ Toledo, Ohio. The repairwork on schoolbooks has been discontinued upon an order of the FERA administrator under which the work was carried on. A group of 50 women were employed, at a cost of 73 cents a book. It was decided that it would be more economical to replace the old texts with new. Some 28,000 books were repaired by the women with materials for mending and cleaning pages, resewing and binding, and washing and shellacking covers.

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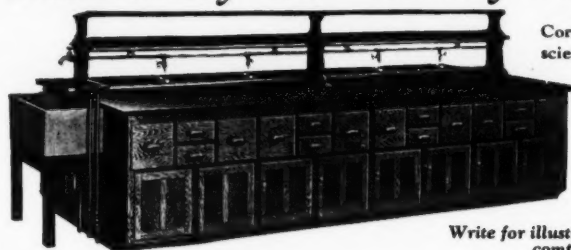
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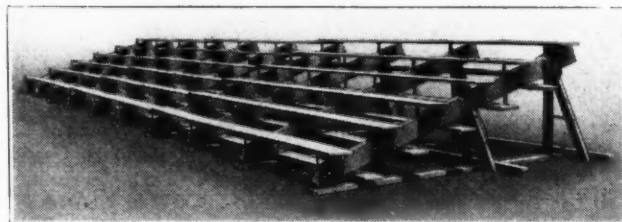
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(See Architects Directory, page 78)

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### That Long-Winded Speech

Supt. Frank A. Jensen, of Rockford, Ill., is death on long speeches at educational conventions. In explaining his preference, he tells the story of a lecturer who overshot his time, and apologized by mentioning the absence of a clock in the room.

A thoroughly bored teacher in the front row spoke up: "There's a calendar back of you."

### Overheard at the Teachers' Convention

Teacher A: "Blunt speakers have one paradoxical trait."

Teacher B: "What is that?"

Teacher A: "They usually come to the point."

### The Real Reason

When Woodrow Wilson was president of Princeton University, he startled a body of alumni by saying, "Some of you write and ask us why we don't make more of your boys. I will tell you the main reason—because they are your boys."—Scribners.

### Her Family

Little Betty, returning from school one afternoon, said: "Johnny Wilson's examination papers were so good that teacher keeps them on her desk to show visitors."

Asked about her own, she had to confess that they weren't good.

"But why aren't yours as good as Johnny's," her mother asked: "You have the same opportunities."

"I know, Mother," said Betty, "but Johnny Wilson comes from a very bright family."

### With Good Reason?

The history teacher noticed that one of his pupils was daydreaming out of the classroom window and not following his work on the blackboard.

The master rapped angrily on the desk with his ruler to command attention, and when this had no effect he said sharply:

"Board, Jones!"

The pupil looked up, startled.

"Oh, yes, sir—Very!" he replied.

### No Bacon That Day

A college student helping his roommate prepare for a test on early English writers of the same period asked:

"What prose writer of the Elizabethan period wrote epigrammatic essays?"

The only response was a blank look.

"Just remember what you had for breakfast," prompted the helper.

"Toast," was the reply.

### Helping!

Professor's wife: "Goodness, John! Where did you get that lighted red lantern?"

Professor: "I picked it up. Some careless person left it out there by that hole in the road."

Flower Seller: "Cent apiece, mister. Ten for a dime!"

Absent-minded Schoolman: "Correct! You may sit down."

Bobby did not seem to be paying much attention to the lesson, so his teacher thought she would question him, just to see if he had been listening.

"Now, Bobby Jones!" she cried. "Where are elephants found?"

"Well, teacher," said Bobby, "they are so big they aren't very often lost!"

The teacher was putting questions to the class.

"What do we call a man," he asked, "who keeps on talking and talking when people are no longer interested?"

"Please, sir," replied a boy, "a teacher."



### Ask Father

Teacher: What is a synonym?

Pupil: A synonym is a word you use when you can't spell another.

## Buyers' News

### TRADE NEWS

**Brown Instrument Company Consolidates with Minneapolis-Honeywell.** In the recent consolidation of the Brown Instrument Company, of Philadelphia, with the Minneapolis-Honeywell Regulator Company, of Minneapolis, two of the largest and oldest firms in the temperature-control field have become combined. Both of these companies are pioneers, the Brown Company having been established in 1860, while the Minneapolis-Honeywell was organized in 1885.

The consolidation occurs on the fiftieth anniversary of the Minneapolis-Honeywell Company and rounds out and completes the firm's line of heating, ventilating, cooling, humidifying, and air-conditioning control equipment for domestic and large buildings. The Brown Company's business includes a complete line of instruments for indicating, recording, and controlling temperatures, pressures, liquid levels, speeds, and flows, serving such varied industries as power, oil, steel, chemical, glass, and automotive industries.

The combination of the two companies, it is believed, will be advantageous from a manufacturing, development, and sales end.

**Issue Bradley Blue Book.** The Bradley Washfountain Company, 2203 West Michigan St., Milwaukee, Wis., has issued a new Bradley Blue Book, devoted to the description of a wide variety of washfountains, for use in schools, institutions, stores, and offices. The booklet lists a number of schools which have installed the Bradley washfountain because of its hygienic advantages, durability, water economy, and space saving. The firm also manufactures a number of fountains of special juvenile height for the use of small children.

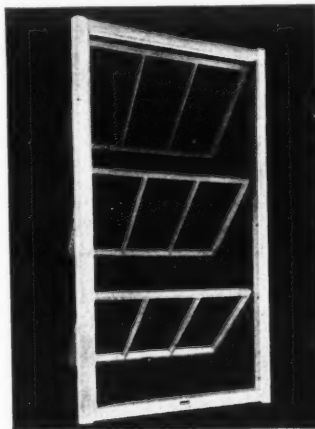
The Bradley washfountain meets the claim of the manufacturers for low installation cost, maximum sanitation, reduced water consumption, space economy, minimum maintenance, durability, time saving, and saving in janitor labor.

Complete information and prices are available to any school official upon request.

### TRADE PRODUCTS

**The Dalmo Automatic, Multiple-Operating Window.** The Dalmo automatic school ventilating window, perfected and manufactured by the Dalmo Sales Corporation, of San Francisco, Calif., is now being manufactured and marketed by the White Pine Sash Company, of Spokane, Wash.

The Dalmo window is a wooden window of improved awning-type design, which has been designed for use in schools, hospitals, and other public build-



THE NEW DALMO AUTOMATIC WINDOW

ings. Made entirely of wood, the Dalmo window has the advantages of a modern mechanical window without its austere mechanical appearance. The wood frame is fully impregnated to resist termites and rot, and blends readily with any type of architecture.

The window offers the alternative of three-sash, or two-sash ventilation through the independent operation of the center sash, which permits more than half of the vent area to be closed for protection, while the upper and lower sash are utilized for ventilation. The opening of the lower sash causes the cold air to be deflected upward and prevents direct drafts. In warm weather, the center sash can be opened as desired to augment the ventilation provided by the upper and lower sash. The center sash is completely reversible for cleaning, and the double-locking arms are proof against forced entrance. A special locking action at the jamb achieves a weatherproof, weather-tight fit of the upper and lower sash, obviating the installation of casement fasteners on wide windows. The window may be fitted with weather-stripping.

The same window, identical in design and features, may also be obtained in steel.

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**SCHOOL-BUILDING CONSTRUCTION**

During the month of November, 1934, contracts for eleven buildings were let in eleven states west of Rocky Mountains. The total price of these contracts was \$1,537,929. Seven further building projects were reported, at an estimated cost of \$504,200.

During the first eleven months of 1934, 69 contracts were let, at a total cost of \$8,269,095. A total of 407 additional projects were reported, at an estimated cost of \$35,254,611.

In 37 states east of the Rockies, Dodge reports for November 210 educational building contracts involving 1,573,500 square feet of construction and costing \$8,604,400.

**NATIONAL EXHIBITORS ANNOUNCE EDUCATION AWARD**

The Associated Exhibitors of the National Education Association each year, at the Department of Superintendence Meeting, presents the "American Education Award" to some individual who has contributed in an outstanding way to some phase of education.

The Association this year, at the annual meeting in Atlantic City, will present the award to Miss Jane Addams, of Hull House, Chicago. Miss Addams, who is a leader in social work, has received a number of honors, including the Nobel Peace Prize for 1931.

**SCHOOL RECOVERY IN PENNSYLVANIA**

The educational and governmental forces of Pennsylvania gathered recently at Harrisburg to discuss and plan the rehabilitation of the schools of that state. Governor Gifford Pinchot, State Superintendent James N. Rule, Charles H. Judd, and others participated in the conference.

While it was brought out in the deliberations that no schools had been closed, it developed that the retrenchments made here and there had become oppressive. Thus, the problem of school support became the main topic of discussion.

It developed that the subject of taxation became the principal point of attack. The present constitution, under which the real-estate owner pays 85 per cent of the local taxes, was written 60 years ago when real estate formed 90 per cent of the state's wealth. Today real estate forms only 40 per cent of the wealth of the state. The remainder is in the form of stocks, bonds, and securities which are free from taxation.

The conclusions, which received utterance, included an inheritance tax on the larger estates, a revision of the tax on public utilities, etc. Prof. Marion K. McKay proposed a relief on realty taxation by

1. Broadening the base of local taxation.
2. More efficient operation of local governments.
3. More efficient assessment and collection of taxes.
4. Consolidation and elimination of governmental units, including school districts.
5. Assumption of a major share of the expense of education by the state.
6. Possible limitation of the rates upon real estate by legislative enactment.

**GROWTH OF BESSEMER SCHOOLS DURING 1933-34**

The public schools of Bessemer, Ala., had a total enrollment of 4,204 pupils during the school year 1933-34, which was a decrease of 43 from the estimate of 4,247 in 1932-33. In 1933-34, the school census reported 5,334 pupils, as against 5,125 in 1932-33, or a decrease of 29. During the year, the average daily attendance was 3,697.45 in 1933-34, as against 3,719.90 in 1932-33, which showed a decrease of 22.45.

During the year 1933-34, the high-school enrollment was 1,393, and in 1932-33 it was 1,107. The elementary-school enrollment in 1934 was 2,811, and 3,140 in 1933. The report shows that the cost of operating the school system was \$117,115 in 1933-34, which was \$32,085 below the estimate of \$149,201 for 1932-33.

**HOW TO ESTABLISH CONTACTS BETWEEN THE SCHOOLS AND THE LOCAL COMMUNITY**

The school administrative staff of the public schools of Harrison, Ark., at the first faculty meeting of the school year, worked out a definite plan through which to establish contacts between the schools and the business interests of the community.

In addition to the school newspaper, articles have been printed in the local daily paper and the weekly paper, and other regular channels of publicity. The student council in the high school has been organized to function by committees. One committee of this council has for its purpose and responsibility the sending of a representative from the high school to each meeting of the Rotary and Lions' clubs. These clubs give five minutes of each meeting to representatives from the high school, who provide information about the school. It is the purpose to present information to these clubs each week which will help them understand the program of their school. Each school organization will be represented in some way at some of these programs. The talks are prepared under the

careful supervision of a faculty member and care is taken that the philosophy of the school is always represented.

It has been found that business men in these organizations welcome these talks and when a representative is not present they want to know the reason for the omission. As the year progresses, it is planned to vary these programs by combining music and other forms of entertainment with more serious talks.

**AKRON SCHOOLS MAKE PROGRESS DESPITE FINANCIAL SITUATION**

Supt. R. H. Waterhouse, of Akron, Ohio, in a report to the board of education, points out four definite steps of progress by the schools in the face of alarms of school closing because of a lack of funds and a serious financial situation.

The four steps of progress outlined by Mr. Waterhouse are a full 15-week school term for the first semester for the first time in three years; the payment of bonded debt and interest, the partial restoration of teachers' salaries, and the holding of \$100,000 in cash for script-retirement fund.

By a careful balancing of budget items, Mr. Waterhouse showed how it will be possible to extend the present semester until December 21. During depression years and shortened terms, the first semester had been 14 and 14½ weeks.

**FINANCIAL SITUATION IMPROVED**

The public schools of Opelika, Ala., were operated for the full nine months during the past school year and teachers' salaries have been raised 30 per cent so that they are now up to the predepression scale.

During the depression the schools were able to keep in operation due to a liberal city council and an enlightened board of education. While the school system enjoys no special district tax for school purposes, it is provided with a small county appropriation, enjoys the benefits of a small incidental fee, and the city council regularly appropriates the balance to meet the required budget. In addition, the schools receive assistance through the regular distribution of state attendance funds.

While the school system does not have a superabundance of money, it has a city council and school board which are favorable to education and see that support of schools is maintained.

**ANNOUNCE REMOVAL**

The firm of Ernest Sibley, formerly of Palisade, N. J., has announced the removal of its office to Litchfield, Conn.

# Advertisers' Reference Index

Acme Shear Company, The.....	71	Ford Company, The J. B.....	84	Peterson & Co., Leonard.....	80
Allyn and Bacon.....	4th Cover	Gregg Publishing Company, The.....	56	Pittsburgh Steel Company.....	8
American Abrasive Metals Co.....	76	Hoffman Combustion Engineering Co.....	7	Porter Corporation, J. E.....	72
American Crayon Company, The.....	58	Holden Patent Book Cover Co.....	56	Porter Mfg. Co.....	82
American Floor Surfacing Machine Company.....	76	Holmes Projector Company.....	77	Powers Regulator Company.....	6
American Seating Company.....	14	Holtzer-Cabot Electric Company.....	66	Premier Engraving Company.....	80
American Type Founders Sales Corp.....	68	Horn Folding Partition Co.....	74	Rastetter & Sons Co., Louis.....	80
Anour Company, The.....	74	Huntington Laboratories.....	64	Reading Iron Company.....	63
Armstrong Cork & Insulation Co...3rd Cover		International Business Machines Corp.....	55	Rowles Co., E. W. A.....	80
Babb & Co., Inc., Edward A.....	82	Irwin Seating Company.....	70	Royal Metal Mfg. Company.....	76
Beck Studios.....	82	Johnson Service Company.....2nd Cover		Rundle-Spence Mfg. Company.....	6
Beckley-Cardy Company.....	71	Kewaunee Mfg. Company, The.....	2	Schermerhorn Teachers' Agency.....	82
Berger Mfg. Company.....	67	Kimball Company, W. W.....	59	School Architects Directory.....	78
Binders Board Manufacturers' Association.....	54	Knowles Mushroom Vent. Co.....	76	Sengbusch Self-Closing Inkstand Company.....	74
Bruce Company, E. L.....	4	Macmillan Company, The.....	53	Sheldon & Company, E. H.....	69
Cabot, Inc., Samuel.....	67	Major Equipment Co.....	80	Solar-Sturges Mfg. Co.....	72
Cannon Stadium & Seating Company.....	76	Maple Flooring Manufacturers' Association.....	5	Spencer Turbine Company.....	4
Carbon Solvents Laboratories.....	82	Medart Mfg. Company, Fred.....	57	Standard Electric Time Co., The.....	60
Chicago Gymnasium Equipment Company.....	63	Miller Keyless Lock Co., J. B.....	76	Stewart Iron Works Co., The.....	63
Chicago Hardware Foundry Company.....	75	Minneapolis-Honeywell Regulator Co.....	9	Sturtevant Company, B. F.....	79
Clarín Manufacturing Co.....	11	National Lock Company.....	11	Taylor Company, Halsey W.....	65
Columbia School Furniture Corp.....	2	National School Equipment Co.....	76	Tiffin Scenic Studios.....	82
Crane Company.....	61	National School Supplies and Equipment Association.....	10	Tile Tex Company, The.....	8
DeVry, Inc., Herman A.....	74	National Vulcanized Fibre Co.....	74	Twin City Scenic Co.....	74
Dick Company, A. B.....	3	Nelson Corporation, Herman.....	1	Universal Bleacher Company.....	80
Draper Shade Company, Luther, O.....	77	Nesbitt, Inc., John J.....	6	Vestal Chemical Company.....	72
Dudfield Mfg. Co.....	82	Newcastle Products, Inc.....	76	Weber Costello Company.....	69
Dudley Lock Corporation.....	67	Norton Company.....	62	Welch Mfg. Company, W. M.....	11
Electric Storage Battery Co.....	2	Norton Door Closer Company.....	73	Western Electric Company.....	12
Esterbrook Steel Pen Company.....	71	Peabody Seating Company, The.....	69	White Pine Sash Company.....	8
Evans, W. L.....	72			Yale & Towne Mfg. Co.....	4

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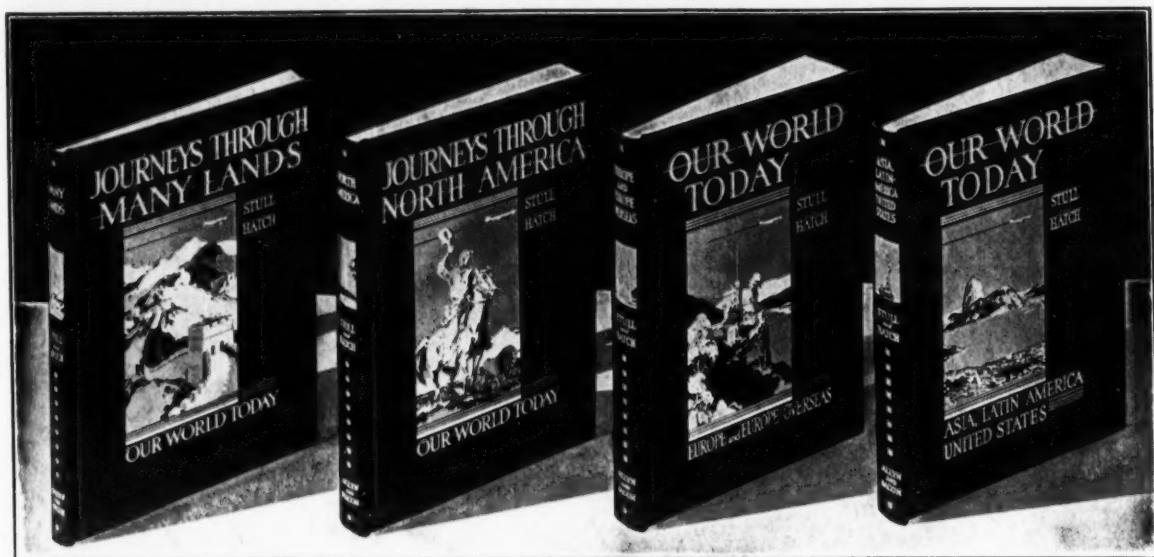


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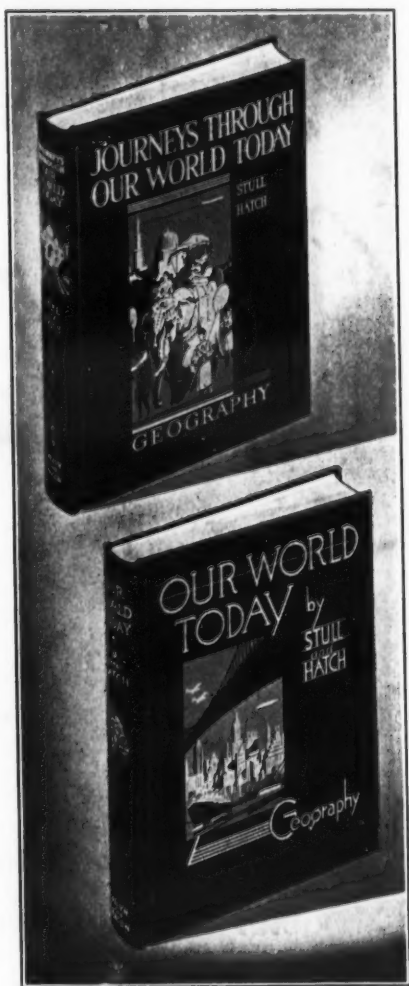
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